PAPER TRADE JOURNAL
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Government Bids Open At Higher Prices

Paper For Supplying the Government Printing Office For the Six Months' Period From July 1 Is Offered At About 14 To 20 Per Cent Higher Than For Previous Six Months—Bids By 33 Firms.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 21, 1941—Bids were received on Monday by the Joint Congressional Committee on Printing from 33 bidders for a supply of paper for the use of the Government Printing Office for a six months period from July 1. Six months ago there were 39 bidders. It was estimated roughly by government experts that the bids were from 15 to 20% higher than they were at the bid opening in November. There were a number of conditional tonnage bids. Joint Committee will meet on May 26 to discuss awards. Bids received on Monday were as follows:

Newsprint

No. 1—2,000,000 lbs., 24x36—64; rolls, 19, 24, 36, and 48 ins. wide (3-inch fiber cores, weight of cores and wrappers shall be included in net weight).

Old Dominion Paper Co.	3.4788c
Paper Corp. of U. S.	3.33c
National Pulp & Paper Co. (340,000 lbs.)	2.85c

Machine-Finish Book

No. 3—500,000 lbs., 25x38—70; flat, cut 24x32, 28x38, and 31¼x45½ ins.

Mudge Paper Co.	6.059c
Perkins-Goodwin Co.	6.17c
Stanford Paper Co.	6.21c
R. P. Andrews Paper Co.	6.15c
Barton, Duer & Koch Paper Co.	6.22c
Marquette Paper Co.	6.085c

No. 4—600,000 lbs., 25x38—70; flat, cut 24x38, 38x48 and 38x50 ins.

Mudge Paper Co.	6.059c
Frank Parsons Paper Co.	6.085c
Perkins-Goodwin Co.	6.17c
Stanford Paper Co.	6.19c
R. P. Andrews Paper Co.	6.15c
Barton, Duer & Koch Paper Co.	6.22c

No. 5—600,000 lbs., 25x38—70; flat, cut 24x38, 38x48 and 38x50 ins.

Mudge Paper Co.	6.059c
Perkins-Goodwin Co.	6.17c
Stanford Paper Co.	6.19c
R. P. Andrews Paper Co.	6.15c
Barton, Duer & Koch Paper Co.	6.22c
Marquette Paper Co.	6.085c

No. 6—400,000 lbs., 25x38—70; rolls, 18, 21, and 28½ ins. wide (3-inch fiber cores).

Mudge Paper Co.	5.409c
Frank Parsons Paper Co.	5.495c
Perkins-Goodwin Co.	5.47c
Stanford Paper Co.	5.89c
R. P. Andrews Paper Co.	5.57c
Barton, Duer & Koch Paper Co.	5.77c

No. 7—1,100,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch fiber cores).

Mudge Paper Co.	5.409c
Perkins-Goodwin Co.	5.37c
Stanford Paper Co.	5.57c
R. P. Andrews Paper Co.	5.54c
Barton, Duer & Koch Paper Co.	5.77c
Marquette Paper Co.	5.395c

No. 8—1,100,000 lbs., 25x38—70; rolls 19 and 38 ins. wide (3-inch fiber cores).

Mudge Paper Co.	5.409c
Frank Parsons Paper Co.	5.395c
Stanford Paper Co.	5.59c
R. P. Andrews Paper Co.	5.54c
Barton, Duer & Koch Paper Co.	5.77c

No. 9—400,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide (3-inch fiber cores).

Perkins-Goodwin Co.	5.47c
Stanford Paper Co.	5.85c
R. P. Andrews Paper Co.	5.66c
Barton, Duer & Koch Paper Co.	5.77c
Marquette Paper Co.	5.495c

No. 11—1,000,000 lbs., 25x38—80; flat, cut 24x38, 33¾x64, 38x48 and 38x50 ins.

Mudge Paper Co.	5.92c
Frank Parsons Paper Co.	5.965c
Stanford Paper Co.	6.07c
R. P. Andrews Paper Co.	6.02c
Barton, Duer & Koch Paper Co.	6.09c

No. 12—400,000 lbs., 25x38—100; flat, cut 22¼x32¼, 24x38, 24¼x36¼, 31½x48, 32x42, 38x48 and 41x52 ins.

Mudge Paper Co.	5.57c
Stanford Paper Co.	5.83c
R. P. Andrews Paper Co.	5.65c
Barton, Duer & Koch Paper Co.	5.87c

No. 13—50,000 lbs. 25x38—120 and 140; flat, cut 29x41, 32x52, and 38x48 ins. Min. order 5,000 lbs.

Stanford Paper Co.	6.43c
R. P. Andrews Paper Co.	6.36c

No. 14—40,000 lbs., blue and salmon, 25x38—70 and 100; flat, cut 25x38 and 38x48 ins. Min. order, one color, 5,000 lbs.

Old Dominion Paper Co. (100 lbs.)	12.491c
Stanford Paper Co. (70 lbs.)	14.50c
(100 lbs.)	14.50c

Machine-Finish Book End Paper

No. 15—100,000 lbs., for waste leaves; flat, cut 25x38—160; the grain to run the 38-inch way.

Whitaker Paper Co.	7.01c
R. P. Andrews Paper Co.	6.89c
Marquette Paper Co.	6.79c

Offset Book

No. 16—600,000 lbs., 25x38—120; flat, cut 25x38, 26x32, and 28x40 ins.; grain as ordered.

Mudge Paper Co.	6.38c
Old Dominion Paper Co.	6.982c
Aetna Paper Co.	6.596c
R. P. Andrews Paper Co.	6.84c
Marquette Paper Co.	6.68c

Antique Book

No. 17—400,000 lbs., 25x38—100 and 120 flat, cut 33x43, 38x48 and 38x50 ins.

Whitaker Paper Co.	5.89c
Old Dominion Paper Co.	6.55c
Stanford Paper Co.	5.90c
R. P. Andrews Paper Co.	5.639c
Barton, Duer & Koch Paper Co.	6.01c

Lightweight Machine-Finish Book

No. 18—50,000 lbs., 25x38—60; flat, cut 32x48 and 38x48 ins.

No bids.

50 Per Cent Rag Lighweight Machine-Finish Book

No. 19—40,000 lbs., 25x38—60; flat, cut 32x48 and 38x48 ins. Min. order 10,000 lbs.

Old Dominion Paper Co.	13.89c
Paper Corp. of U. S.	13.97c

50 Per Cent Rag Antique Book

No. 20—120,000 lbs., 25x38—80; flat, cut 32x48 and 38x48 ins.

Whitaker Paper Co.	10.46c
Mudge Paper Co.	12.21c
Chicago Paper Co.	10.95c
Old Dominion Paper Co.	9.75c
Cauthorne Paper Co.	10.93c
Aetna Paper Co.	10.617c
Paper Corp. of U. S.	10.28c

(Continued on page 22)

Declares Newsprint A Depressed Industry

Revenue Department of Ottawa States Canadian Newsprint Industry Has Right To Claim Standard of Not Over 10 Per Cent On Capital Employed Under Excess Profits Tax Act — Other News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 19, 1940—The National Revenue Department at Ottawa has declared the Canadian newsprint industry "a depressed industry" for purposes of the Excess Profits Tax Act.

"This means that the entire newsprint industry has the right to claim a standard of not less than 5%, and not more than 10%, on its capital employed," one official said. "Above this standard we tax at the rate of 75%.

Recognition of an industry as depressed may be made by the Board of Referees under the Excess Profits Tax Act, the official explained, and the Board then proceeds to set a standard profit for the industry.

"The board gives them a base and the excess profits tax applies above that base," he said. "It is the board's job to determine whether an industry is depressed, either as a class or for reasons peculiar to itself. The newsprint industry did not make a great profit in 1937, 1938 and 1939."

The above ruling is a highly important development and one which leaders of the industry have been striving to obtain for months. It means that the industry is now given an opportunity to conserve some of its resources and build up a reserve against future contingencies. In respect of their 1940 reports many paper companies proceeded on the assumption that the industry would be treated as "depressed," and deducted the minimum tax of 30% under the federal bracket. With five per cent for Quebec tax, a total of 35% was deducted by companies in this province. Next year, on the basis of the recent Budget change, this will be increased to 40% federal, with the provincial tax eliminated.

Canadian Supply of Newsprint to U. S.

According to a report issued by the Newsprint Association of Canada, this country maintained its share of the supply of newsprint to American publishers in April at 67% of the total supply. The apparent U. S. consumption in that month was put at 331,735 tons, a 5% increase over April, 1940. The report adds that advertising linage in 52 U. S. cities increased 6.5% over April last year, magazine advertising linage declined 0.8%, and billings for three major radio networks in the first quarter of 1941 increased 8.1% over the same period last year.

New Uses for Wood Pulp

The Canadian Pacific Railway Company, in its monthly business bulletin, gives an astonishing list of new uses for the forest wealth of Canada, mainly by the application of chemistry to wood pulp. One recent development is the use of an exceedingly thin kind of paper in the condenser of the mercury vapor lamp used in the new fluorescent method of illumination, of which paper more than a million dollars worth, it is estimated, will be used this year in the United States and Canada. The article proceeds:

"Although cotton still remains the main source of cellulose for plastics, woodpulp has replaced it in many instances, and since woodpulp is cheaper than cotton cellulose, it will undoubtedly replace cotton more and more as new uses for plastics are developed. The nitrates and acetates are the most extensively used cellulose plastics. Nitrate, prepared in considerable quantity from wood cellulose, is used in the making of fountain pens, brushes, cutlery handles, and all sorts of novelties. Except in the field of explosives, acetate is superior to nitrate for many purposes. It is used in airplane dopes and windshields, eye-pieces for gas masks, lamp shades, handles for tools, various automobile body parts, advertising signs, and because of its less inflammable nature is replacing nitrocellulose in the manufacture of photographic film. Cellulose acetate is now reported to be produced from wood cellulose in England, and there are many patents in the United States covering its production from this material.

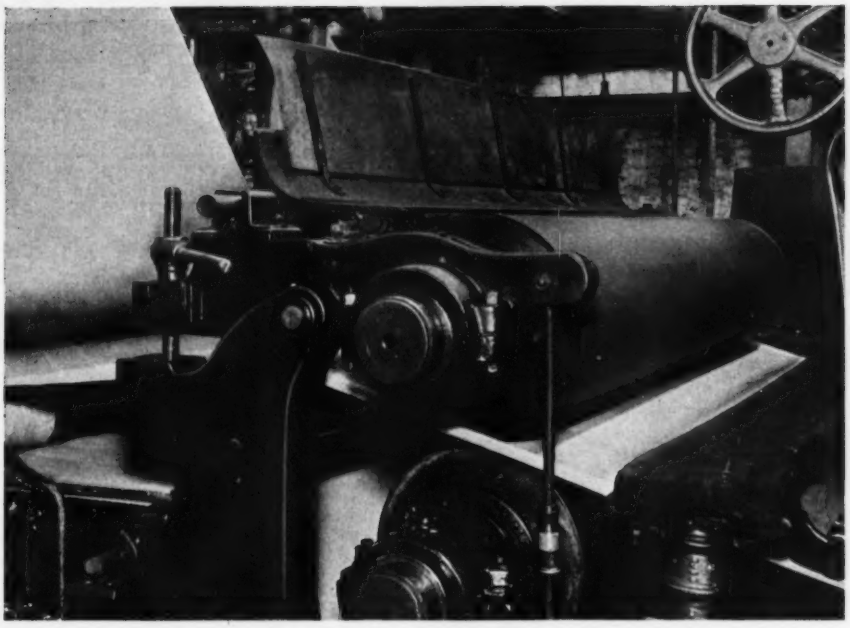
"Other less extensively used cellulose plastics are the ethyl, methyl, benzyl, acetobutyrate and acetopropionate derivatives. Ethyl cellulose is used in films, as an adhesive, in coating materials, and in moulded form for home construction. Methyl cellulose is used in industrial operations such as dispersing, emulsifying and sizing; benzyl cellulose as transparent wrapping paper with waterproof qualities; cellulose acetobutyrate for outdoor furniture and in lacquers and other protective coatings. Cellulose acetopropionate is used in photographic films, particularly for X-ray purposes."

Newsprint Production Higher

Production of newsprint in Canada during April, 1941, amounted to 279,996 tons and shipments to 285,789 tons, according to the News Print Service Bureau. Production in the United States was 87,000 tons and shipments 91,487 tons, making a total United States and Canadian newsprint production of 366,996 tons and shipments of 377,276 tons. During April, 26,605 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 393,601 tons. Total production in April, 1940, was 383,447 tons.

The Canadian mills produced 59,589 tons more in the first four months of 1941 than in the first four months of 1940, which was an increase of five and nine-tenths per cent. The output in the United States was 6,219 tons or one and eight-tenths per cent more than in the first four months in 1940; in Newfoundland production was 7,178 tons or six and six-tenths per cent more, making a total increase of 72,986 tons, or five per cent more than in the first four months of 1940.

Stocks of newsprint paper at the end of April were 180,389 tons at Canadian mills and 14,303 tons at United States mills, making a combined total of 194,692 tons compared with 204,972 tons on March 31, 1941, and 231,230 tons at the end of April 1940.



TESTED BY TIME...
and more than 2100 installations

Which rolls are best for top press and smoothing roll service? On over 2100 occasions, leading papermakers said "STONITE*!" Performance facts based on nearly 60 million hours of operation prove conclusively that STONITES* will:

- **Improve surface finish.**
- **Reduce pick-ups and breaks.**
- **Resist scoring and cracking.**
- **Improve the safety and efficiency of operation.**

Experience favors STONITE* . . . why experiment?

(Ebonite and Granulated Stone Composite U. S. Patent 1,787,890 Re. 18,111)

Stowe-Woodward

THE RUBBER ROLL SPECIALISTS

Newton Upper Falls, Mass.

Price Situation Satisfactory in Chicago

Normal and Moderate Increases Appear To Be Price Trend of Paper Market In Near Future—All Grades of Paper In Active Demand With Waste Paper Strong — Paper Milk Carton Battle.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 19, 1941—Local satisfaction with the development of the markets here is expressed this week as the price situation remains within bounds and gives promise, according to reports, of orderly increases in the near future. With the exception of the marked advance in books reported earlier, the markets held strong without making any material new ground. Groundwoods, for example, were reported very firm with demand growing increasingly stronger yet without any bulge above the current price level. Sulphites were stronger with some grades holding new ground in impressive fashion. Covers held a much stronger tone. Board markets were exceedingly active and specialties again gave a good account of themselves. Waste papers were quoted as very strong.

Paper Carton Fight Resumed

The fight over use of paper cartons in Chicago still rages merrily on, proving that litigation can go on and on forever. Oral arguments on the city's opposition to the use of paper milk containers in Chicago were heard this week before the U. S. Circuit Court of Appeals. The court concentrated on the question of the meaning of the words "standard milk bottle" as used in the city's ordinance and whether the interpretation of the city that these words meant a glass bottle only as a reasonable interpretation. To these contentions the Dean Milk Company argued against the contention that a milk bottle must be a glass bottle. Paper containers, said counsel, have been used for milk since 1906 and 480 cities in the United States use paper containers while Chicago alone prohibits their use. The city has contended that paper milk containers are a health menace. To this the Dean Company argues that the city has never offered any proof based on scientific fact to show that paper containers are not healthful. The company added that both the U. S. Health Service and the State legislature have codes for the regulation of milk sales that allow the use of paper containers.

Paper Trade Observes Foreign Trade Week

The local paper trade, well aware of the importance of the foreign trade situation, plans to participate generally in the forthcoming National Foreign Trade Week observances in Chicago which get under way on Monday. Foreign trade organizations, commercial bodies and specific trade groups will participate in special meetings at which emphasis will be given to the problems of maintaining normal foreign trade relationships and post war adjustments. Chicago territory observances will center around a joint luncheon of the Export Managers Club of Chicago and the Chicago Association of Commerce on Wednesday with L. R. Edminster, special assistant to the secretary of state, as the speaker. The foreign trade division of the Chicago Association of Credit Men will attract other executives of the paper industry when, on Tuesday, it will hold a round table discussion of foreign trade problems at the Morrison Hotel. Some local attention is also being given to a Wednesday evening dinner in nearby Milwaukee when the Milwaukee Association of Commerce and the Wisconsin Exporters Club will hold a foreign trade dinner at the Pfister Hotel with W. O. Taylor, export manager of the tractor division of the Allis-Chalmers Manufacturing Company as the main speaker. Paper trade executives are members of one or all of these various groups and will participate in discussions centering around foreign trade as it affects the raw materials market and general paper consumption the world over.

Salesmen Open Golf Season

The western division of the Salesmens Association of the Paper Industry has completed its plans for the initial golf outing of the 1941 season according to Ed Rolaine of the Mosines Paper Mills, chairman of the Association's golf committee. The outing will be held at the Sunset Ridge Country Club next Friday afternoon, May 24 with informal luncheon, golf and dinner and awarding of prizes in the evening. Increased membership, the need for more recreation during a particularly trying period and the general good fellowship program arranged are all expected to be factors in developing a record initial turnout. Subsequent parties will be held each month through to October and the final event held in conjunction with the Fall meeting of the National Paper Trade Association in Chicago.

Paper Men Attend Safety Conference

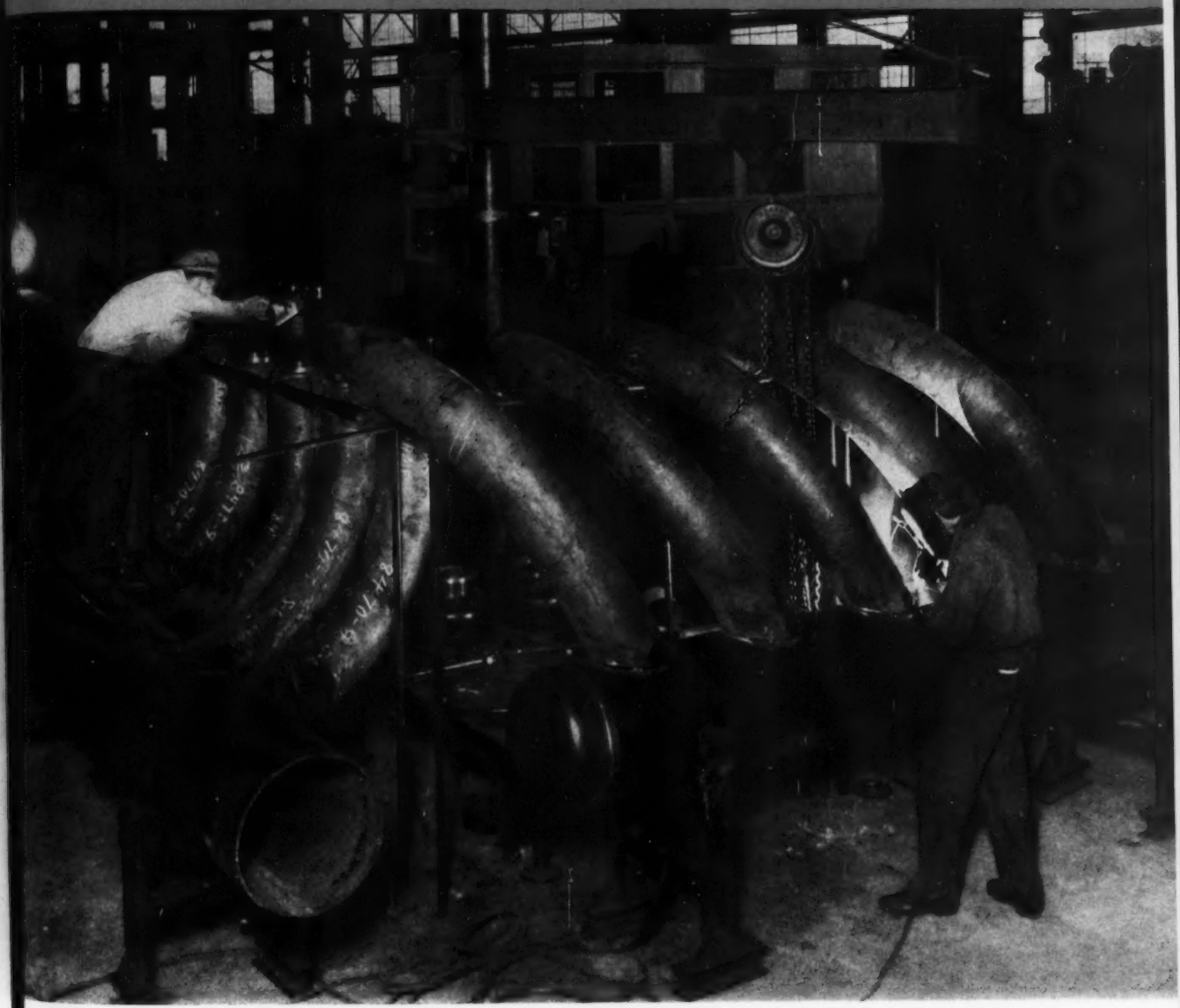
The nineteenth annual Midwest Safety Conference, held in Chicago last week, attracted a good attendance from paper mill executives and particularly mills in nearby States who have outstanding safety programs in their plants. The three day affair included a discussion of a wide variety of topics with the paper industry seemingly mainly interested in the possibilities of maintaining interest in industrial safety as developed in a program participated in by J. J. Plzak, claims manager of the Consolidated Water Power & Paper Company of Wisconsin Rapids.

Storrs & Bement Record Progress

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 19, 1941—Storrs & Bement Company is mailing to customers a brochure regarding balanced, McElwain processed Certificate Bond, Printed on Certificate Bond, White Substance 20, stressing seven reasons why the paper is one of the outstanding rag content bond papers on the market today. The reasons are listed in their order of importance. They are: Appearance, balance, workability, texture, completeness, versatility and availability. The brochure contains also a "record of progress" of the company.

Here's What We Mean By "KNOWING HOW"!



The plans called for special, heavy duty headers. The specifications were tough . . . predetermined strength . . . difficult curves and angles . . . exacting thermal characteristics . . . dimensional precision . . . delivery on a tight schedule.

Grinnell engineers have plenty of experience in handling these complicated assignments. Rough layouts of plant requirements were immediately interpreted in terms of alloy steel piping, accurate forming and welding, margins of safety, and underwriters' inspection. Conveniently located Grinnell plants then speedily prefabricated these and other subassemblies. And, promptly on delivery date, the complete installation was on the job . . . ready for erection.

This is only one of many examples of "knowing how" that prompts leading engineers to say, "Give the plans to Grinnell"! Write for detailed manual on Grinnell Prefabricated Piping. Grinnell Co., Inc., Executive Offices, Providence, Rhode Island. Branch offices in principal cities of United States and Canada.

PREFABRICATED PIPING BY **GRINNELL**

WHENEVER **PIPING** IS INVOLVED

Proposes Plan For Abitibi Reorganization

Financier Would Reduce Funded Debt As First Objective By Redeeming Bonds With Excess Capital Now Available—Shortage of Woodsmen In Prospect—Record Contracts For Pulpwood Are Let.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 19, 1941—Notwithstanding all the legal talent that has been identified in one way and another with the Abitibi Power and Paper Company, and its many experiences since it went into receivership almost ten years ago, its bondholders still need a champion to protect them from indifferent management and loss of legal rights, according to James G. Bryce, Montreal.

Mr. Bryce thinks that the first objective should be to reduce the funded debt and this could be done, he says, by open market purchase of bonds, or through sale by tender from individual bondholders, using excess working capital now available. Mr. Bryce thinks his plan will be helpful, not only to bondholders, but to shareholders as well.

Urges Clearing Up of Abitibi Tangle

The Montreal financier sets forth his ideas in a letter to the *Financial Post,* in part, as follows:

"The Abitibi bondholder has looked for nine years for some one to champion his cause, to save him from indifferent management and grant him his legal rights. There have been belated attempts to straighten out the position of the bondholders, but all these have been strangled by a mass of legal machinery and conflicting interests. It would appear that the unfortunate bondholder has run the gamut of misfortune.

"After nine years is it not time to clear up this mess that has been a blot on Canadian finance? The company is doing well, or relatively well, and the Royal Commission has recommended that form of the company be not changed, but surely it is in the interests of bondholders and preferred and common shareholders that the bonded debt be reduced."

Could Use Capital To Redeem Bonds

Mr. Bryce continues and asks, "Is there any reason why the working capital in excess of $10.5 millions (the figure the Commission sets as sufficient) should not now be used to redeem bonds in the open market, or on tender from individual holders. It is probable that a large block of bonds could be acquired below 75, thus cancelling a liability to the company of $100 on each bond, together with $42.50 of back interest, and a further amount of interest on interest. In other words, for every $75 expended in this way, a liability of about $150 could be cancelled. If some $5 to $10 millions bonds could be taken off the market and cancelled it would materially improve the capitalization of the company and the future prospects of all security holders. The price of bonds should advance and the chances of uninterrupted interest payments brighten."

"The cash would be of infinitely greater benefit to the bondholders if expended in this way than if it were paid out in redemption of some back coupons," Mr. Bryce states.

Declares Plan a Simple One

Contending that his idea is a simple one as the need to reduce the bonded indebtedness is obvious, Mr. Bryce asks, "To whom can a poor bondholder turn to get action—action which would benefit all classes of security holders in the Abitibi Power and Paper Company?"

The *Post* says that present conditions of the market for any corporation bonds, including those of Abitibi, make it hard to tell how many bonds could be retired without having a substantial influence on prevailing prices.

Interests close to the official bondholders protective committee suggest that the amount of bonds likely to be offered at much under par would not be substantial. They claim that prevailing prices of around 65 are very low, when it is considered that for $650 an investor could get $1,000 bond on which there is accumulations of almost nine years' interest, plus interest on unpaid interest.

Half Million Cords Pulpwood Contracts

Timber operators at Fort William, Ont., recently estimated there is work for more than 10,000 woodsmen from now until the end of August, but there are few more than 4,000 men available.

Contracts for more than 500,000 cords of pulpwood have been let to lakehead timber operators—largest summer season total on record—and contractors are looking east and west for men to fill the more than 115 camps in the Thunder Bay area.

Allocation of Cotton Papers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 21, 1941—The Department of Agriculture today announced allocations to 21 manufacturers of about 6,640 bales of low-grade cotton to be used in the making of high-grade writing paper under the USDA cotton paper program announced March 26. The allocations were made through the Writing Paper Manufacturers Association, which is conducting program transactions with manufacturers.

Similar to the 1940 cotton paper program, the plan calls for the diversion of up to 10,000 bales of low-grade cotton for high-grade paper manufacture. Federal diversion payments, however, at the rate of 4½ cents per pound, will be made on only 75 per cent of the cotton used for this purpose by manufacturers approved by the Department.

Allocations to each of the 21 manufacturers approved thus far, range from 50,000 to 200,000 pounds of all types of the low-grade cotton which can be used under the program. The materials allocated, by quantity, are: lint cotton, 60,000 pounds; comber waste, 1,156,000 pounds; card strips, 1,826,000 pounds; and No. 2 high linters, 137,500 pounds.

To encourage employment by manufacturers of as many combinations of the various types of cotton fibre as possible, allocations of the cotton do not exceed 50,000 pounds of any one type, nor more than 200,000 pounds of all types to any manufacturer.

Institute of Paper Chemistry Meets May 22

Paper Mill Executives To Be Well Represented At Sixth Annual Conference of Institute — Schedule of Interesting Program Announced—Interlake Co. Increases Wages—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 19, 1941—More than 100 executives from member paper mills will attend the sixth annual conference of the Institute of Paper Chemistry here Thursday and Friday, May 22 and 23.

Highlights of the program will be addresses by Dr. Clarence J. Dykstra, chairman of the federal mediation board, director of selective service, and president of the University of Wisconsin, and Sidney D. Kirkpatrick, editor of Chemical and Metallurgical Engineering, and vice-president of the American Institute of Chemical Engineers.

Following registration at 10 o'clock Thursday morning, the executives will make an inspection tour of the Institute, all departments of which will be in operation. All staff members will be on hand, and candidates for degrees will be standing by their thesis apparatus ready to discuss their work.

Schedule of Interesting Program

Mr. Kirkpatrick will give his address at a noon luncheon at North Shore Golf Club, with D. C. Everest, president of the Marathon Paper Mills Company and vice-president of the Institute board of trustees, presiding. Westbrook Steele, executive director of the Institute, will discuss policies and activities.

Thursday afternoon will be devoted to recreation, including a golf tournament with medal play with club handicaps.

Dr. Dykstra is to speak at a banquet at 7 o'clock Thursday evening, presided over by Ernst Mahler, executive vice-president of the Kimberly-Clark Corporation and president of the Institute board. Entertainment will be furnished by the A. Capella Choir of Lawrence College, with which the Institute is affiliated, under the direction of Dr. Carl J. Waterman.

Student discourses will be given Friday morning by Shirley R. Parson, John F. Hechtman, Kenneth D. Hay, Robert A. Stillings, Philip E. Shick, James H. Harrison, Robert W. Reed and George H. Sheets.

Dr. Thomas N. Barrows, president of Lawrence College and ex-officio member of the Institute board, will preside at a luncheon Friday noon, at which further student discourses will be given by James d'A Clark, Archie J. Deutschman, Jr., Harold Y. Charbonnier, Paul B. Hansen, Glenn C. Kimble, Robert J. Van Nostrant, William W. Marteny and Paul R. Wiley.

Golfing trophies will be awarded at a buffet dinner Thursday evening at the North Shore Golf Club. The board of trustees will hold a meeting the evening of May 21, preceding the conference.

Interlake Co. Increase Wages

Employees of the Interlake Pulp and Paper Company division of the Consolidated Water Power and Paper Company at Appleton, Wis., have been given an increase in wages of five cents per hour, retroactive to May 1, according to C. K. Boyer, mill manager. The increase affects 275 workers and will mean a yearly addition of approximately $25,000 to the payroll. Wages are now as high as those paid by any paper mill in the United States. All other employees of Consolidated mills were recently given a similar increase, affecting approximately 2,000.

George W. Mead Reelected

George W. Mead, president of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., was reelected president of the Wisconsin Valley Improvement Company at the annual meeting at the company's offices at Wausau, Wis., last week. The organization is made up of water power users along the Wisconsin River, and maintains a series of control dams and reservoirs.

D. C. Everest, president of the Marathon Paper Mills Company, Rothschild, Wis., and S. B. Bugge, general manager of the Tomahawk Kraft Paper Company, Tomahawk, Wis., were elected vice-presidents. W. E. Brooks was elected consultant and will serve in an advisory capacity.

M. W. Kyler, who was assistant manager, was elected general manager, treasurer and assistant secretary. L. W. Hackbart was elected secretary and assistant treasurer. Fred W. Genrich was reelected counsel.

Among the directors reelected besides Messrs. Mead, Everest, Bugge and Brooks were: C. E. Kohlhepp of Milwaukee, Wis., comptroller of the Wisconsin Public Service Corporation; R. G. Walter, Madison, Wis., Wisconsin Power and Light Company; J. E. Alexander, president of Nekoosa-Edwards Paper Company, Port Edwards, Wis.; H. J. Behnke, secretary of the Wisconsin River Pulp and Paper Company, Stevens Point, Wis., and Folke Becker, president and general manager of the Rhinelander Paper Company, Rhinelander, Wis.

K-C Employees Hold Safety Meeting

Kimberly-Clark Corporation employees of the mill at Niagara, Wis., participated in a safety meeting held at the high school at Niagara May 14, sponsored jointly by the company and the vocational school. The chief speaker was Chief Eagle Plume of the Blackfoot Indians, whose subject was "Industrial Safety and the Indians' Contribution to America." E. V. Johnson served as chairman of the meeting.

R. M. Sensenbrenner on School Board

R. M. Sensenbrenner, vice-president and general manager of the George A. Whiting Paper Company, Menasha, Wis., was reelected president of the Menasha school board at a meeting May 13.

Culp-Toll Nuptials

Fred E. Culp, chemical engineer for the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and Miss Doris Toll of Appleton, Wis., were married Thursday evening, May 15, at All Saints Episcopal church at Appleton, by the Rev. J. M. Johnson of Wisconsin Rapids.

Manufacturer to Protect Regular Customers

Trade Notified By Atlantic Gummed Paper Corp. That Some Customers Will Be Given Monthly Quotas With Deliveries Contingent On Supply of Raw Materials—Roofing Rags Active—Other News.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 19, 1941—Ordinarily, when demand is at the peak now experienced by paper merchants, optimism prevails, but the contrary seems to be the order of the day in this territory, as is witnessed by a letter sent out to customers by Frederick I. Brower, Philadelphia Representative for Atlantic Gummed Paper Corporation, which reads as follows:

"By force of circumstances, no contracts can be accepted in cases where substantial shipments have been made recently, or, where there are substantial unfilled portions of existing contracts. We are providing for regular customers and, those whose stocks are low, will be given a month-to-month quota, based on 1/12th of their 1940 consumption.

Orders Accepted With Certain Provisions

"All prices are subject to change without notice and quotations are tendered on all orders subject to any taxes or charges imposed by Federal, State or local authorities which shall become payable on products of this company by reason of their manufacture, sale and/or delivery. Any such levies affecting the seller's cost shall be deemed to be for the buyer's account and will be billed separately or added to the cost of the product. These conditions shall apply on existing contracts and on new commitments.

"Deliveries will be contingent upon our ability to secure raw materials."

Paper Stock Market Little Changed

With hardly a reportable change in the condition of the paper stock market from that of the last few weeks, the merchants are more or less marking time so far as general marketing conditions are concerned. While there has been a general revival of prosperity, the mills, which are running full time are limiting the extent of their purchasing of available stock at quoted prices, thereby keeping the prices more or less pegged, hoping by watchful waiting to secure better prices even though it is conceded hereabouts that the present market quotations are not abnormally high.

Roofing Rags in Good Demand

Conditions in the rag and waste materials market are reported to be continuing on an even keel with a steady movement on new and old rags, the strongest demand, however, being experienced in roofing rags. No one seems to be forcing their hands on the purchasing of these materials and the dealers are looking for something to happen but so far nothing has happened. Those mills which have government orders are apparently giving the government prior rights in the matter of deliveries, and as no one can tell just how far reaching the requirements are or will be, it falls to the lot of the commercial consumers to take second choice.

Moore & White Book Equipment Orders

The improvement experienced in the paper trade here is reflecting itself very materially in new mill equipment, alterations and repairs. Among the commitments booked by Moore & White Company are a heavy type M. & W. 4-drum winder and slitter part to work in conjunction with a paper machine for the Linden Division of American Writing Paper Company, Holyoke, Mass.; a Moore & White 2-drum complete rewinder for Castanea Paper Company, Lock Haven, Pa., and extensive alterations of a dryer part of a paper machine for the Union Mills Paper Company at New Hope, Pa.

Indianapolis Demand Improves

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 19, 1941—Wholesale paper, virtually all lines continued to improve during the last week and the outlook for summer is brighter than it was a year ago. Prices continue firm and orders are for larger individual volume. Factory production in the central Indiana area also continues to expand and likely will continue for some time. Warehouse stocks are apparently well balanced, but they are not large and as order files become heavier production increases with it.

Newsprint demand is in a favorable position with lineage in practically all papers, both metropolitan and small, increasing. Advertising seems well balanced between foreign and domestic displays. Prices are very firm and above those of a year ago.

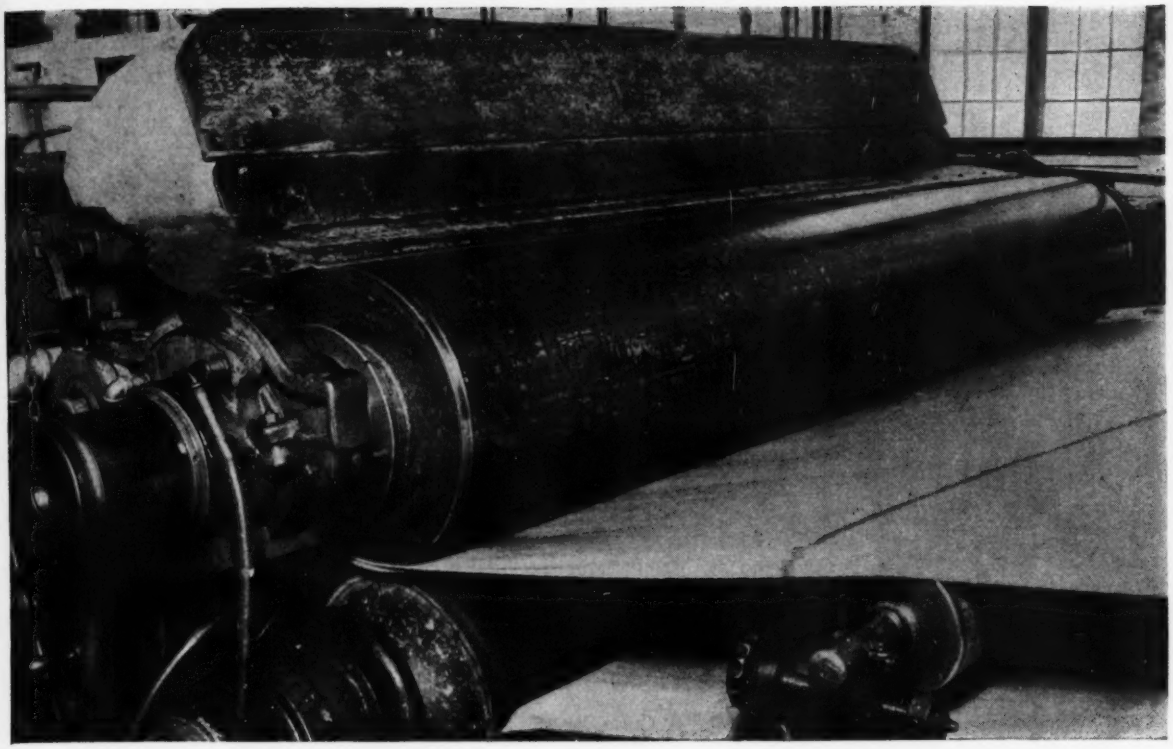
Demand for summer specialties is increasing rapidly in spite of the fact that the state has had no real summer weather as yet, except in the extreme southern part. Jobbers have some attractive deals and dealers are taking advantage of them.

With little damage having been done by spring frosts to the fruit and vegetable industry, which is extensive in this state, manufacturers of basket linings and cartons made especially for this trade, are expecting a wonderful season. Last year was rather bad due to much of the fruit crop having been destroyed by late frosts. Orders from co-operatives and large commercial growers are expected to begin arriving shortly, since inquiries already have been made as to prices.

Other container manufacturers report a gradual expansion of business. Demand from the brewery and ice cream trade is increasing and will reach new highs when the summer season is more advanced.

Kraft continues in demand with prices firm. Tissues are moving nicely and prices show no appreciable change.

A fair demand was seen last week for paper stock with most of it for lower grades. Better grades were moving rather sluggishly. Better grades of rags were moving well and roofing rags were very active.



MANHATTAN *Rub-Roc* ROLLS

for uninterrupted high production

HERE is a MANHATTAN Rub-Roc Top Press Roll that is still in service after more than two years of continual use without having been removed from the machine for grinding.

Several types of paper are made and all without difficulty.

The smooth, hard, water-repellent surface of the roll not only gives a perfect nip, but uniform lay, unbroken formation and an improved felt life.

From paper mills all over the country come similar reports on MANHATTAN Rubber Covered Rolls—suction, couch, extractor, press and table rolls.

The next time you need a roll recovered, avail yourself of MANHATTAN'S 48 years' experience to protect your production with this kind of roll service.

Three convenient plants:

Neenah, Wis. Passaic, N. J. North Charleston, S. C.

Condor PRODUCTS

Compensated Belt	Steam Hose
Conveyor and Elevator Belt	Suction Hose
V-Belt	Water Hose
Agricultural Belt	Screen Diaphragms
Paper Mill Hose	Molded Rubber Goods
Air Hose	Oilless Bearings
Acid Hose	Industrial Brake Blocks and Lining
Fire Hose	Abrasive Wheels
Oil & Gasoline Hose	Bowling Balls

KEEP AHEAD WITH MANHATTAN

THE MANHATTAN RUBBER MFG. DIVISION

OF RAYBESTOS-MANHATTAN, INC.

58 Townsend Street • Passaic, New Jersey

Birmingham Chicago Cleveland New Orleans New York Boston
Minneapolis Detroit Pittsburgh Philadelphia St. Louis San Francisco

Appoint TAPPI Convention Committees

An aggressive effort is being made by the Michigan members of the Technical Association of the Pulp and Paper Industry to arrange one of the best national fall meetings of TAPPI ever held. The meeting will be held at Ann Arbor, Mich. on September 16-19, 1941 inclusive.

Committees Appointed

The following committees have been appointed to handle the details.:

GENERAL CHAIRMAN

R. A. Hayward, Kalamazoo Vegetable Parchment Company.

VICE-CHAIRMEN

D. W. McCready, University of Michigan.
W. K. Kidder, Bryant Paper Company.

ADVISORY COMMITTEE

A. G. Ruthven, president, University of Michigan.
I. C. Crawford, dean, University of Michigan.
S. T. Dana, dean, University of Michigan.
A. H. White, professor, University of Michigan.
A. E. White, professor, University of Michigan.
W. J. Lawrence, Bryant Paper Company.
L. W. Sutherland, Sutherland Paper Company.
H. R. Telfer, Detroit Sulphite Pulp and Paper Company.
D. R. Curtenius, Allied Paper Company.
Theo. W. Dunn, Dunn Sulphite Paper Company.
E. W. Kiefer, Port Huron Sulphite and Paper Company.
O. H. Cox, Eddy Paper Corporation.
Dan T. Quirk, Peninsular Paper Corporation.
John Ford, Michigan Alkali Company.
A. E. Curtenius, Kalamazoo Paper Company.
H. C. Bradford, Rex Paper Company.
Geo. K. Ferguson, Watervliet Paper Company.
Jas. A. Foxgrover, Hercules Powder Company.
L. G. Fell, Michigan Carton Company.
M. D. Bardeen, Lee Paper Company.
G. H. Gerpheide, Hawthorne Paper Company.
L. R. Verdon, American Cyanamid & Chemical Corporation.
M. B. Hall, American Box Board Company.
C. E. Nelson, Mac-Sim-Bar Paper Company.
D. L. Stocker, Michigan Paper Company.
C. L. Wood, River Raisin Paper Company.
A. J. Grosbeck, Monroe Paper Products Company.
F. G. French, French Paper Company.
C. W. Smith, Central Paper Company.
Willard H. Dow, Dow Chemical Company.
H. Lee Rauch, Consolidated Paper Company.

ADMINISTRATION, FINANCE, AND ACCOUNTING COMMITTEE

John Wood, Kalamazoo Vegetable Parchment Company.
H. C. Bradford, Rex Paper Company.
J. A. Wise, Kalamazoo Paper Company.
G. F. Des Autels, Kalamazoo Vegetable Parchment Company.

ARRANGEMENTS COMMITTEE

D. W. McCready, University of Michigan.
F. D. Libby, Kalamazoo Vegetable Parchment Company.
H. F. Roderick, Michigan Alkali Company.
R. D. Freeman, Dow Chemical Company.
Paul W. Bartholomew, Paper Makers Chemical Dept., Hercules Powder Company.

REGISTRATION COMMITTEE

E. F. Whittington, Rex Paper Company.
E. D. Elliott, E. J. Kelly Company.
W. S. Taylor, American Cyanamid and Chemical Corporation.
J. L. Waber, Rex Paper Company.

PUBLICITY AND PRINTING COMMITTEE

Milton R. Bailey, Bulkley Dunton Company.
Mr. Anderson, University of Michigan.
Dan T. Quirk, Peninsular Paper Company.
M. R. Wilkins, Bryant Paper Company.
Glenn Stewart, Kalamazoo Vegetable Parchment Company.
L. J. Scheid, Watervliet Paper Company.
C. L. Bachelder, Paper Makers Chemical Dept., Hercules Powder Company.

RAILROADS AND LOCAL TRANSPORTATION COMMITTEE

Paul DeGuehery, Michigan Paper Company.
W. F. Hathaway, Kalamazoo Vegetable Parchment Company.
G. C. Schmid, Michigan Paper Company.
Arthur Weinland, Lee Paper Company.

MILL VISITS COMMITTEE

H. L. Barton, Michigan Paper Company.
H. L. Davis, Detroit Sulphite Pulp & Paper Company.
J. D. Dickson, R. T. Vanderbilt.
L. E. Fitzgerald, Paper Makers Chemical Dept., Hercules Powder Company.
A. L. Sherwood, Sutherland Paper Company.
J. E. Bauman, Kalamazoo Vegetable Parchment Company.
Roy Holden, Stowe Woodward, Inc.

PROGRAM COMMITTEE

D. W. McCready, University of Michigan.
W. K. Kidder, Bryant Paper Company.
Fred Shankweiler, Paper Makers Chemical Dept., Hercules Powder Company.
Fred L. Chappell, Jr., Sutherland Paper Company.
W. A. Kirkpatrick, Allied Paper Mills.
Myron Kin, Dow Chemical Company.

LADIES COMMITTEE

H. D. Eliason, Johanneson, Wales & Sparre.
M. F. Flotow, French Paper Company.
E. B. Taylor, American Cyanamid and Chemical Corporation.
M. R. Bailey, Bulkley Dunton Company.

ENTERTAINMENT COMMITTEE

W. A. Kirkpatrick, Allied Paper Mills.
F. B. Eilers, agent for Orr Felt and Blanket Company, Eastwood-Nealley Corporation, Fitchburg Duck Mills.
L. L. Griffiths, Williams-Gray Company.
J. R. Verdon, American Cyanamid and Chemical Company.
O. W. Callighan, Edgar Brothers Company.
M. C. Jones, Michigan Carton Company.
C. B. Smith, Huron Milling Company.

James Coombe Heads Wm. Powell Co.

James Coombe, recently was elected president of the Wm. Powell Company, manufacturers of bronze, iron, steel, and corrosion resistant valves, Cincinnati, Ohio. With the exception of 2½ years, during which time he served over-seas as Captain of the Artillery in the First World War, he has been associated with the company since his graduation from Yale in 1910.

Mr. Coombe is a director of the First National

JAMES COOMBE

Bank, the Crosley Corporation, the Globe-Wernicke Company, and the Randall Corporation.

The Wm. Powell Company announces also the election of Harry H. Coombe, chairman of the board of directors and treasurer; George E. Weitkamp, first vice-president and secretary; David M. Forker, Oliver F. Gang, Wm. E. Heilig, and E. R. Noll, Vice Presidents; and Wm. E. Minor, Jr., assistant to the president.

C. D. Anderson Heads B. C. Foresters

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., May 17, 1941—C. Dewey Anderson, managing director of the Salmon River Logging Company Ltd., was re-elected president of the B. C. Branch, Canadian Forestry Association, at a directors' meeting in the Terminal City Club, Vancouver, B. C., recently.

Directors for the B. C. Branch in 1941 are: C. A. Bartram, Dr. A. H. Bayne, E. G. Baynes, S. C. Blaylock, C. P. Browning, H. S. Foley, T. A. Kelley, J. McInnis, A. McKelvie, Harry Dollar, Geo. O'Brien, Wm. McLallen, Geo. P. McLauchlin, A. E. McMaster, H. J. Macking, W. T. Moodie, W. F. Stewart, C. P. W. Schwengers, Lieut.-Col. F. B. J. Stephenson, J. A. Young, H. P. Wilson.

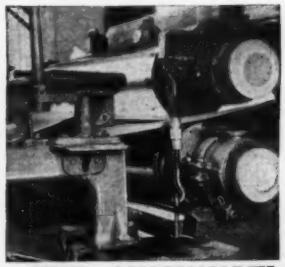
At the meeting Mr. Anderson outlined the proposed activities of the association for the year, and explained that it has been through the splendid example set by the Junior Forest Wardens of British Columbia that led to the formation of a body of Junior Forest Wardens in the State of Washington. Mr. Anderson said that the public were fast beginning to realize their own responsibility in keeping fire out of our forests.

DON'T
THROW A WRENCH
INTO PRODUCTION

You've got production schedules to maintain . . . you've got orders to fill . . . you've got customers to satisfy . . . delays are more costly now than ever before, so don't "throw a wrench into the works" with equipment that can't meet the new requirements.

On roll cover and transmission belt replacements . . order time-tried, dependable Cincinnati Rubber Covered Rolls and Transmission Belts. Today with Cincinnati Rubber Products you're sure of the same careful manufacturing . . . the same precision standards . . . the same high quality that has won them the preference for years in more than 150 important paper mills.

Use
CINCINNATI
RUBBER COVERED ROLLS
. . TRANSMISSION BELTS



THE CINCINNATI RUBBER MFG. CO.
CINCINNATI, OHIO

Obituary

William Alexander Munro

William Alexander Munro, 49, president of the Flambeau Paper Company, Park Falls, Wis., died May 10 at The Homestead, Hot Springs, Va., after an attack of coronary occlusion.

Mr. and Mrs. Munro had been at Hot Springs for several weeks on a vacation. On the morning of May 10th, Mr. Munro played golf with J. H. Coy, Sales Manager of the Flambeau Paper Company. He complained of feeling ill during the golf game and died shortly after going to his hotel.

Mr. Munro was born at Cohoes, N. Y. He was a member of the first class in the new Forestry school at Syracuse University, Syracuse, N. Y., being graduated with the degree of B.Sc. in 1913. On August 13, 1918, he married Lura E. Brubaker in Chicago.

Mr. Munro, began his career in the paper industry with the Finch-Pruyn Paper Company, Glens Falls, N. Y., in 1913, starting in the woodroom and working up to woodroom foreman. In 1916, he went with the Escanaba Paper Company, Escanaba, Mich., and was there for a year and a half. He joined the Navy in the summer of 1918 as a first-class seaman, and in a few months, was advanced to Second Lieutenant in the steam engineering division. He was given a certificate for honorable service when discharged from the Navy in May 1919.

In September 1919 he went with the Wisconsin Paper and Pulp Company, Stevens Point, Wis., as groundwood superintendent, leaving that mill in 1921 to go with the Minnesota and Ontario Paper Company at International Falls, as groundwood and yard superintendent. In 1922, he was sent by the Minnesota and Ontario Paper Company to start their new mill at Kenora, Canada, leaving in April to do special work in organizing the new laboratory for the Eddy Paper Company, Three Rivers, Mich.

In July 1923 he went to Port Angeles, Wash., with the Washington Pulp and Paper Company to do special work in the development of pulping methods for the newly available western woods. In this work he was particularly successful and received outstanding recognition from the entire industry.

In 1925, he became resident manager for the Munising Paper Company. During his residence at Munising, he organized the Alger County Taxpayers Association and served as its president. He was president of the Upper Penninsula Development Bureau for two successive terms, and served as a director of this organization the balance of the time he lived in Munising. He also served two terms on the board of directors of the Upper Penninsula State Fair Association.

Mr. Munro left the Munising Paper Company in 1935 to take over the mill of the Flambeau Paper Company at Park Falls, Wis., as president and general manager. He remained in that position until his death, and in this period of six years, transformed the mill into one of the most efficient and successful producers of pulp and paper in the Wisconsin industry.

Mr. Munro was recognized by the paper industry as having an outstanding talent for organization and selection of men. He was a strong believer in the conservation of our natural resources, and took an active part in promoting reforestation and the reuse of idle lands in northern Wisconsin for the growing of timber.

During recent years, Mr. Munro encouraged his men in the mill to send their boys to college by offering financial help and summer work, and more recently by the establishment of a perpetual educational fund.

Mr. Munro is survived by his wife; his mother, Mrs. Louise Munro; and a sister, Mrs. Albert Brodeur of Rockville Center, N. Y.

I. Ferdinand Kahn

I. Ferdinand Kahn, president of the Capitol Paper Co., died May 8 in Hollywood, Fla. The 55-year-old business man had been ill nearly two years.

A native of Indianapolis, Mr. Kahn was a member of the Indianapolis Hebrew Congregation and B'nai B'rith. He had been visiting in Florida for his health.

He is survived by his wife, Ann B.; two daughters, Mrs. Lewis Lurie and Miss Peggy Kahn, and two grandchildren, all of Indianapolis.

Rabbi Morris Feuerlicht officiated at the services, held at the Indianapolis Hebrew Temple, 10th and Delaware streets. Burial was in the Indianapolis Hebrew Cemetery.

M. A. Tynan

McClellan Albert Tynan, 69, formerly in the wholesale paper business at Columbus, Ohio for 35 years and a resident of Columbus for 50 years, died at his home, 1710 Goodale boulevard May 8. Mr. Tynan came to Columbus from Bellefontaine and was manager of the Whitaker Paper Company for 15 years. He also had been manager of the Chatfield & Woods Wholesale Paper Company. He retired 11 years ago.

He is survived by his wife, Mrs. Julia Freeman Tynan; a son, Albert F. Tynan, a local architect; daughter, Julia Anne Tynan; two sisters, Miss Margaret Tynan and Mrs. Anna G. Brown of Detroit.

Albert Ernest Temple

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 19, 1941—Albert Ernest Temple, 68, for the last five years salesman for Percy D. Wells, Inc., died at his home 123 Prescott street, Reading, Mass., May 12. Mr. Temple, who covered Boston, had been ill since February. Before coming to Boston, he was a salesman for the Merrimac Paper Company, Inc., Lawrence, Mass. He was very popular, a Mason, and a charter member of Reading Commandery, which came into existence in 1921. A wife, a daughter, Mrs. Doris Streeber, and two sons are living.

The funeral was held Thursday from his late residence.

Albert Downing

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 19, 1941—Albert Downing, 81, an old-time salesman for D. F. Munroe Company, died at the home of his son in Melrose, Mass., May 12. Mr. Downing, who had been associated with the Munroe company since 1913, had not been in good health for the last year. In his capacity as salesman, he had a wide acquaintance in the trade in Boston, which he covered and was very well liked. He was a member of the Masons. Mr. Downing leaves one son. Funeral services were held in Amesbury, Mass.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending May 21, 1941

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	26¼	25¼	26
Celotex Corp.	8⅞	8¾	8⅞
Celotex Corp., pf.	68	68	68
Certain-Teed Products Corp.	3⅛	3	3
Certain-Teed Products Corp., pf.	25¼	23½	25¼
Champion Paper & Fibre Co.	18	17⅝	17⅝
Champion Paper & Fibre Co., pf.	104	103½	103½
Congoleum-Nairn Co.	15⅛	14⅝	15⅛
Container Corp. of America	13¼	12¾	13¼
Continental-Diamond Fibre Co.	7⅞	7½	7¾
Crown-Zellerbach Co.	12	11¾	12
Crown-Zellerbach Co., pf.	83½	83½	83½
Flintkote Co.	12½	12¼	12½
Robert Gair	1⅜	1¼	1⅜
Robert Gair, pf.	8⅝	8	8⅜
International Paper & Power Co.	13¾	12⅞	13⅜
International Paper & Power, pf.	67	63½	66½
Johns-Manville Corp.	59⅝	57½	59½
Johns-Manville Corp., pf.	125	124½	124½
Kimberly Clark Corp.	....	....	....
MacAndrews & Forbes	25½	25	25½
MacAndrews & Forbes, pf.	134	133	134
Masonite Corp.	20⅞	20	20¼
Mead Corp.	7⅜	7	7
Mead Corp., pf.	....	....	....
Paraffine Companies, Inc.	27½	27	27½
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	12	11¾	11¾
Rayonier, Inc., pf.	25	25	25
Ruberoid Co.	15⅝	15⅝	15⅝
Scott Paper Co.	36½	35	35
Scott Paper Co., pf.	113½	113½	113½
Sutherland Paper Co.	19½	18¾	18¾
Union Bag & Paper Corp.	10½	10¼	10¼
United Paperboard Co.	2¾	2¾	2¾
U. S. Gypsum Co.	57⅜	55	57¼
U. S. Gypsum Co., pf.	177	173	175

New York Curb Exchange

High, Low and Last for Week Ending May 21, 1941

	High	Low	Last
American Box Board Co.	4½	4½	4½
Brown Co., pf.	14¼	14¼	14¼
Great Northern Paper Co.	....	....	....
Hummel-Ross Fibre Corp.	5¼	5⅛	5⅛
National Container Corp.	11¼	11	11¼
St. Regis Paper Co.	1¾	1⅜	1¾
St. Regis Paper Co., pf.	86½	86½	86½
Taggart Corp.	2½	2⅜	2⅜

Paper Index Rises

WASHINGTON, D. C., May 21, 1941—Index of the value of paper manufacturers inventories in March was 112.7 compared with 112 in February and 108 in March of last year taking December 31, 1938 at 100 according to the monthly business survey of the Department of Commerce.

March index of the value of paper manufacturers shipments was 152 compared with 148 in February and 119 in March of last year taking January 1939 at 100.

The department's statement states that industry of all kinds continued to move forward in March. Demand for both defense and civilian goods expanded, the index of manufacturers' new orders gaining five points to reach a new high of 194 in March.

Bowater's Profits Higher

Bowater's Newfoundland Pulp and Paper Mills, Ltd. for 1940 reports a net income of $1,009,847, compared with $341,696 in 1939.

Missisquoi Nets $26,874

The Missisquoi Corporation for 1940 reports a net income of $26,874, compared with $23,065 in 1939.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 21, 1941—During the week ended May 3 various government departments under the Walsh-Healey Act purchased $149,665.13 worth of paper and allied products according to information made public by the Public Contracts Board of the Department of Labor.

Purchases made include the following; R. P. Andrews Paper Company will furnish $17,605.85 worth of writing paper to the Government Printing Office; Marquette Paper Company will furnish $12,836.05 worth of writing paper to the same department; Resolute Paper Products Corp. will furnish $41,560.73 worth of toilet paper to the Quartermaster Department, War Department at Brooklyn, N. Y.; and R. P. Andrews Paper Company wil furnish $77,662.50 worth of mimeograph paper to the Bureau of Supplies & Accounts, Navy Department.

Voting Certificates Offered

A block of voting trust certificates representing 16,665 shares of common stock of the Southern Advance Bag and Paper Company has been offered to investors by an underwriting group headed by E. H. Rollins & Sons, Inc., and including Schroder Rockefeller & Co., Inc., Schoellkopf, Hutton & Pomeroy, Inc., and Johnson, Lane, Pace & Co., Inc. The offering price will be $10.25 a share.

The marketing will not represent new financing by the company. The bankers said they had bought the shares as represented by the certificates and intended to buy 21,109 additional shares under option.

Gaylord Earns 26 Cents

The Gaylor Container Corporation and its subsidiary for the March quarter reports a net profit of $211,839, equivalent to 26 cents each on 539,221 shares of common stock, compared with $201,123, or 24 cents a share, in first quarter of 1940.

Rayonier Votes Dividend

Rayonier, Inc., has declared a payment of 25 cents a share on the common stock, payable June 2 to stockholders of record May 24. This is the first disbursement since a dividend of 50 cents was paid on January 1, 1938.

Soundview Earns $178,934

The Soundview Pulp Company, including Lyman Timber Company for April reports a net income of $178,934, after estimated excess-profits tax, compared with $200,764 in April, 1940.

Southern Advance Earnings Up

The Southern Advance Bag and Paper Company, Inc. for 1940 reports a net income of $768,390, equal to $3.49 each on 166,650 shares of common stock, compared with $72,526 in 1939.

CONSTRUCTION NEWS

Erie, Pa.—The Erie Corrugated Box Company, 922 Bacon street, manufacturer of corrugated boxes and containers, has completed plans for new plant to be located on East Tenth street, consisting of a one-story structure, 180 x 260 feet, reported to cost close to $100,000, with equipment. General erection contract has been awarded to J. C. Hammond, 224 Lincoln street, and work is scheduled to be placed under way at early date.

Portland, Ore.—The Pacific Roofing Company, 6451 N. W. Front street, manufacturer of roofing papers, prepared roofing, etc., has plans maturing for new addition to plant, comprising a one-story structure, about 60 x 70 feet, to be used primarily for storage and distributing service. A sprinkler system will be installed. Cost reported about $24,000 with equipment. Howard L. Gifford, Railway Exchange Building, Portland, is architect.

Jamestown, N. Y.—The City Council has passed an amendment to zoning ordinance to permit the T. James Clarke Box and Label Works, Inc., 38 Charles street, manufacturer of paper boxes and containers, to proceed with erection of proposed new addition to plant, recently referred to in these columns, and work is scheduled to proceed at early date. The new structure will be one-story, 60 x 120 feet, and will be equipped to give employment to about 40 additional persons, making a total of more than 100 employees at the plant. Cost is reported over $50,000, with equipment. Contract for erection has been let to the Warren Construction Company, 335 Steele street, Jamestown.

Albany, N. Y.—The Capitol City Container Company, Inc., Tivoli and North Pearl streets, Albany, manufacturer of corrugated boxes and containers, has plans under way for new addition to plant, consisting of a one-story structure to be used for storage and distributing service, with shipping platform and other facilities. Cost is reported at close to $45,000, including equipment. Work is scheduled to begin soon. Company is an interest of the Grand City Container Corporation, 622 West 57th street, New York, N. Y.

Manchester, Conn.—The Colonial Board Company, North Main street, manufacturer of binders' board and kindred paper board products, will begin work at once on new one-story addition to mill in the Parkersville district, to be one-story, used for general increase in production department. No estimate of cost has been announced. General erection contract has been awarded to Knofla Brothers, Inc., 875 North Main street, Manchester.

Norfolk, Va.—The Old Dominion Paper Company, 75 Commercial place, general paper products, wrapping papers, etc., has authorized plans for new addition to storage and distributing plant at 54th street and Colley avenue, to be two-story, reported to cost close to $40,000, with equipment. Benjamin F. Mitchell, Flat Iron Building, Norfolk, is architect. It is understood that bids will be asked soon on general erection contract.

Los Angeles, Calif.—The Western Waxed Paper Company, Inc., 910 East 61st street, manufacturer of waxed and other processed paper stocks, has approved plans for new addition to plant, to be used for general expansion, as well as for extensions in storage and distributing division. It will be 150 x 175 feet, reported to cost close to $100,000, with equipment. Erection contract has been let to Engineers, Ltd., 605 West Olympic boulevard, Los Angeles, and erection will be placed under way at early date. Company is a division of Crown-Zellerbach Corporation, 343 Sansome street, San Francisco, Cal.

Neenah, Wis.—The Bergstrom Paper Company, manufacturer of book, catalog and similar paper stocks, has awarded general contract to the Fluor Brothers Construction Company, 48 Otter street, Oshkosh, Wis., for proposed new addition to mill, previously referred to in these columns, to be located on West Wisconsin avenue. It will be used primarily for storage and distribution, with cost estimated about $15,000. A building permit has been issued and work will proceed at once.

Norwalk, Conn.—The Clover Manufacturing Company, 372 Main street, manufacturer of abrasive papers and allied products, has approved plans for new addition to plant, consisting of a two-story building, 60 x 160 feet, to be used for expansion in production department. It is reported to cost over $60,000, with equipment. General erection contract has been awarded to the Hewlett Construction Company, 1385 Iranistan avenue, Bridgeport, Conn., and work is scheduled to begin at once.

Verona, Va.—The Celanese Corporation of America, Inc., 180 Madison avenue, New York, N. Y., manufacturer of cellulose rayon products, is said to be planning early construction of a new mill in the vicinity of Verona, Augusta County, where large tract of land is being acquired on Laurel Hill road, totaling close to 150 acres. Arrangements have been made with the Augusta County Board of Supervisors for certain tax exemption. Proposed mill will comprise several large one and multi-story units for processing and production, with storage and distributing buildings, pumping station, power house, machine shop and auxiliary structures and is reported to cost in excess of $1,000,000, with machinery.

North Bergen, N. J.—The Grand City Container Corporation, 622 West 57th street, New York, N. Y., manufacturer of corrugated boxes and containers, will have plans prepared by Ely Jacques Kahn and Robert Allan Jacobs, 2 Park avenue, New York, architects, for proposed new plant at North Bergen, where company has purchased a tract of about 12 acres of land, fronting on Highway Route No. 1, as recently noted in these columns. New plant will consist of a main one and two-story and basement building, about 300 x 800 feet, and will be equipped for large capacity. Company will remove and concentrate plants now in New York and Brooklyn at new location, as soon as building is available. New plant is estimated to cost about $750,000, with equipment, instead of smaller sum,

previously noted. It is expected to ask bids on general contract early in June and carry out construction during summer.

West Hopkinton, N. H.—The Davis Paper Company, manufacturer of newsprint, has awarded general contract to the Hutchinson Building Company, 274 North State street, Concord, N. H., for proposed new addition to mill, recently referred to in these columns, and will proceed with erection at once. It will be one-story, equipped for expansion in production department, and is estimated to cost close to $70,000, with equipment.

New Companies

New York, N. Y.—The Dorwin Paper Corporation, New York, has been chartered with capital of 200 shares of stock, no par value, to deal in paper products of various kinds. New company is represented by Leonard Bickwit, 50 Broadway, New York, attorney.

Port Chester, N. Y.—Evergreen Paper and Supply Corporation has been incorporated with capital of 100 shares of stock, no par value, to deal in commercial paper goods. Company is represented by Continental Lawyers Albany Service, New York.

Empire State TAPPI Meets at Niagara

The Empire State Section of the Technical Association of the Pulp and Paper Industry met jointly with the New York-Canadian Superintendents and the Niagara Branch of the C.P.P.A. Technical Section at the General Brock Hotel, Niagara Falls, Ont., on May 16-17, 1941. H. E. Karberg of the Alliance Paper Mills was general chairman and P. F. J. Dolan was secretary.

Details were handled by the following committees: Program—B. D. Millidge and E. G. Kirby; Papers—H. D. Cook; Reception—G. Rausch, S. Stapley and A. J. Loman; Mill Visits—H. P. Bailey, T. Imbleau, E. G. Kirby and H. Blankenship; Golf—P. F. J. Dolan and W. J. Parks; Transportation—F. M. H. Cushing and E. G. Kirby; Ladies—Mrs. P. F. J. Dolan, Mrs. H. E. Karberg, Mrs. H. P. Bailey, Mrs. E. G. Kirby, Mrs. B. D. Millidge and Mrs. M. H. Bennett.

Friday was devoted to golf and a cabaret dinner. On Saturday morning visits were made to the mills of the Provincial Paper Ltd., Brantford Felt and Paper Company, Interlake Tissue Mills, Robert Gair Company, Beaver Wood Fibre Company, Ontario Paper Company, Garden City Paper Mills and the International Paper Company.

In the afternoon the following papers were presented: "The Theoretical Man and the Practical Man in the Paper Industry" by H. S. Bristol, International Paper Company, Niagara Falls, N. Y.; "The Determination of the Bursting Strength and Stretch of Wet Pulp Sheets" by R. De Montigny, Pulp and Paper Research Institute of Canada, Montreal, P. Q., and "The Production and Use of Unsettled Bleach Liquor" by W. H. Roberts, Jr., Hooker Electrochemical Company, Niagara Falls, N. Y.

At a business meeting of the Empire State Section the nominating committee consisting of R. F. Huntley, J. D. Rue and W. A. Chilson proposed the following slate of officers who were then elected: Chairman—H. D. Cook, Superintendent, Sweet Bros. Paper Company, Inc., Phoenix, N. Y.; Vice Chairman—V. P. Edwardes, Engineer, International Paper Company, Palmer, N. Y.; Secretary-Treasurer—F. W. O'Neil, Instructor, New York State College of Forestry, Syracuse, N. Y.; Executive Committee—F. J. Lang, Manager, International Paper Company, Tonawanda, N. Y.; R. I. Wynne-Roberts, Technical Director, Finch, Pruyn Company, Glens Falls, N. Y.; H. P. Cannon, Superintendent, Mutual Boxboard Company, Utica, N. Y.; and F. C. Goodwill, Chief Chemist, St. Regis Paper Company, Deferiet, N. Y.

The meeting terminated with a banquet which was addressed by Capt. Rev. Norman Rawson of Hamilton, Ont., on "The Democracies in the War."

Those in Attendance

H. S. Alderson, Mr. and Mrs. L. C. Anderson, Samuel I. Anderson, O. P. Arnold, Mr. and Mrs. H. P. Bailey, W. E. Bailey, R. J. Baird, F. G. Barber, T. G. Batchelor, Mr. and Mrs. M. H. Bennett, Mr. and Mrs. H. D. Blankenship, Mr. and Mrs. W. Gordon Booth, Joseph Brown, Jr., L. H. Breyfogle, John Buss, Mr. and Mrs. E. W. Camp, Mr. and Mrs. William W. Campbell, Harvey P. Cannon, Ferri Casciani, Miss Martha Chamberlain, C. H. Champion, Warren A. Chilson, Floyd B. Collins, Mr. and Mrs. G. R. Connor, Mr. and Mrs. R. M. Cook, Mr. and Mrs. H. D. Cook, Eric S. Cooper, J. F. Cronin, H. S. Cutler, F. M. H. Cushing, P. E. Daley, Mr. and Mrs. H. D. Davison, C. D. DeMers, R. G. Dennis, Mr. and Mrs. V. S. Denison, Miss Ruth Denison, Mr. and Mrs. F. A. Dieckbrader, Mr. and Mrs. E. L. Dilworth, Mr. and Mrs. Peter F. J. Dolan, J. P. Donoghue, Mr. and Mrs. J. H. Dow, D. W. Eamer, Ivar Ekholm, R. A. Emslie, R. F. Engelhardt, L. H. Fish, J. A. Fisher, L. L. Fitzpatrick, Miss Marjorie Frost, George E. Fromm, Harry D. Frost, A. C. Gault, Thomas Gerace, Mr. and Mrs. F. C. Goodwill, William Gormley, John W. Gregor, Walter I. Harte, Ray E. Harter, H. Harvey, Mr. and Mrs. Curtis F. Haskins, H. P. Hawkins, Mr. and Mrs. E. O. Hemstreet, Vern E. Heron, George W. Hine, F. J. Hoar, Frank Hoar, Gus R. Holm, H. A. Horstmann, R. F. Huntley, Mr. and Mrs. T. Imbleau, T. H. Ireland, Mrs. J. B. Jones, Wharton Jackson, C. D. Jacobs, E. J. Johnstone, Douglas Jones, A. B. Julin, Mr. and Mrs. H. E. Karberg, B. L. Kassing, Mr. and Mrs. P. B. K'burg, Charles B. Keown, Mr. and Mrs. H. C. Kinne, Mr. and Mrs. E. G. Kirby, Mr. and Mrs. M. M. Klosson, Mr. and Mrs. J. R. Leslie, Mr. and Mrs. C. H. Lindsly, Mr. Arthur J. Loman, John H. Loomis, R. G. Macdonald, John H. Mackie, Milton J. Maguire, Edward P. Marshall, D. C. Mather, M. F. McCombs, Ed. McWhirter, H. L. Mellen, Mr. and Mrs. B. D. Millidge, Dr. R. de Montigny, H. A. Morrison, T. H. Morrissey, D. C. Murchison, Seelye C. Nagel, M. Neilson, A. W. Neubauer, Mr. and Mrs. W. J. O'Brien, J. J. O'Brien, G. E. Osterheldt, Mr. Parr. R. K. Patterson, Mr. & Mrs. G. M. Pennock, E. Peterson, N. W. Putnam, J. W. Raines, E. Rausch, Mr. and Mrs. J. S. Reichert, Harold Remington, Homer M. Rice, Mr. and Mrs. John H. Rich, W. H. Roberts, Mrs. Catherine Rook, Ralph Seiffe, H. A. Spencer, E. L. Stansel, Mr. and Mrs. Stephen G. Stapley, D. Switzer, E. L. Thompson, Murray O. Thompson, George A. Thompson, Jr., Thomas H. Trimble, Mr. and Mrs. J. W. Turner, Mr. and Mrs. C. C. Vanstry, John B. Venturini, Mr. and Mrs. G. Clifton Walton, Mr. and Mrs. E. R. Wand, Wm. J. Weed, S. J. Whelen, Washburn Weston, C. E. Youngchild, J. W. Youngchild, Mr. and Mrs. Harold R. Wheeler, William R. Willets, A. B. Williams, and F. M. Williams.

GOVERNMENT BIDS OPEN AT HIGHER PRICES

(Continued from page 7)

No. 21—40,000 lbs., 25x38—80; flat, cut 22¾x31½, 29x41 and 31½x45½ ins.

Whitaker Paper Co.	10.46c
Mudge Paper Co.	12.23c
Old Dominion Paper Co.	9.75c
Cauthorne Paper Co.	10.93c
Aetna Paper Co.	10.617c
Paper Corp. of U. S.	10.28c

No. 22—80,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 42 ins.

Whitaker Paper Co.	10.46c
Mudge Paper Co.	12.23c
Old Dominion Paper Co.	9.75c
Cauthorne Paper Co.	10.93c
Aetna Paper Co.	10.617c
Paper Corp. of U. S.	10.28c

75 Per Cent Rag Laid Antique Book

No. 23—10,000 lbs., 25x38—140; flat, cut 24x38 and 29x41 ins.; the laid marks to run the 24-inch and 29-inch direction of the sheet; the grain and chain marks to run lengthwise of the sheet.

Mudge Paper Co.	16.71c
Cauthorne Paper Co.	12.73c
Aetna Paper Co.	12.736c
R. P. Andrews Paper Co.	12.83c
Paper Corp. of U. S.	12.36c

100 Per Cent Rag Antique Book

No. 24—5,000 lbs., 25x38—90; flat, cut 24x38 and 38x48 ins.; the grain to run lengthwise of the sheet. Min. order 5,000 lbs.

Cauthorne Paper Co.	19.73c
Paper Corp. of U. S.	17.67c

No. 25—15,000 lbs., 25x38—140; flat, cut 24x38 and 38x48 ins.; the grain to run lengthwise of the sheet. Min. order 10,000 lbs.

Cauthorne Paper Co.	17.49c
Paper Corp. of U. S.	17.67c

Supercalendered Book

No. 26—2,000,000 lbs., 25x38—90; flat, cut 31¼x45½, 32x48, 34x44, 38x48 and 39x50 ins.

Frank Parsons Paper Co.	6.069c
R. P. Andrews Paper Co.	6.15c

No. 27—400,000 lbs., 25x38—100; flat cut 38x48 ins.

Stanford Paper Co.	6.11c
R. P. Andrews Paper Co.	5.96c
Marquette Paper Co.	5.921c

No. 28—700,000 lbs., 25x38—120 and 140; flat, cut 35x45, 38x48, 38x50, and 38x51 ins.

Frank Parsons Paper Co.	5.897c
Stanford Paper Co.	5.99c
R. P. Andrews Paper Co.	5.94c

No. 29—700,000 lbs., 25x38—90; rolls, 28½ and 38 ins. wide (3-inch fiber cores).

R. P. Andrews Paper Co.	5.72c
Marquette Paper Co.	5.491c

No. 30—500,000 lbs., 25x38—100; rolls, 28½ and 38 ins. wide (3-inch fiber cores).

Mudge Paper Co.	5.5125c
Stanford Paper Co.	5.52c
R. P. Andrews Paper Co.	5.40c

No. 31—500,000 lbs., 25x38—100; rolls, 28½ and 38 ins. wide (3-inch fiber cores).

Mudge Paper Co.	5.5125c
Stanford Paper Co.	5.70c
R. P. Andrews Paper Co.	5.40c

Coated Book

No. 36—1,500,000 lbs., 25x38—140 and 160; flat, cut 24x32, 24x38, 29x41, 34x44, 38x48, 38x50 and 39x51 ins.; the grain to run lengthwise of the sheet.

Whitaker Paper Co.	8.34c
Perkins-Goodwin Co.	7.57c
Stanford Paper Co.	8.13c
R. P. Andrews Paper Co.	8.02c
Paper Corp. of U. S.	7.50c

50 Per Cent Rag Coated Book

No. 37—70,000 lbs., 25x38—140 and 160; flat, cut 32x42 and 38x48 ins.; the grain to run lengthwise of the sheet.

Mudge Paper Co.	13.28c
Virginia Paper Co.	14.75c
Barton, Duer & Koch Paper Co.	14.60c
Butler Co.	14.62c

50 Per Cent Rag Machine-Finish Lithograph

No. 40—80,000 lbs., 25x38—160; flat, cut 10½x16 ins., the grain to run lengthwise of the sheet.

Whitaker Paper Co.	12.49c
Mudge Paper Co.	10.29c
Old Dominion Paper Co.	10.37c
Aetna Paper Co.	10.749c
R. P. Andrews Paper Co.	10.73c
Paper Corp. of U. S.	10.28c

Mimeograph, White and Colored

No. 43—1,200,000 lbs., white, Nos. 40 and 48; flat, cut 24½x30½, 24½x32, 24½x38, 26x42½, and 28½x34½ ins.; the grain to run lengthwise of the sheet.

Whitaker Paper Co.	5.52c
Old Dominion Paper Co.	6.74c
Eastern Corp.	6.79c
Stanford Paper Co.	5.86c
R. P. Andrews Paper Co.	5.67c
Barton, Duer & Koch Paper Co.	5.71c

No. 44—150,000 lbs., blue, buff, green, pink and yellow, No. 40; flat, cut 24½x30½, 24½x32, 24½x38, and 26x42½ ins.; the grain to run lengthwise of the sheet. Min. order, one color, 10,000 lbs.

Cauthorne Paper Co.	6.81c
Eastern Corp.	7.53c

25 Per Cent Rag Mimeograph

No. 47—4,000,000 lbs., Nos. 40 and 48; flat, cut 24½x30½, 24½x38, 26x42½, 28½x34½, and 32½x42½ ins.; the grain to run lengthwise of the sheet.

Virginia Paper Co.	8.90c
Old Dominion Paper Co.	
(500,000 lbs.)	7.69c
(1,500,000 lbs.)	7.94c
(2,000,000 lbs.)	8.44c
Cauthorne Paper Co.	8.145c
Aetna Paper Co.	7.895c
Mathers-Lamm Paper Co.	8.06c
Paper Corp. of U. S.	8.07c

Blue U S M O Safety Writing

No. 51—450,000 lbs., No. 32; rolls, 22 ins. wide, 24 ins. in diameter (3-inch fiber cores).

R. P. Andrews Paper Co.	11.26c

U S M O Writing, White and Blue

No. 52—5,000 lbs., No. 32; rolls, 8½ inches wide, 24 ins. in diameter (3-inch fiber cores). Min. order, either color, 4,000 lbs.

R. P. Andrews Paper Co.	11.10c
	11.75c

Safety Writing Colored

No. 53—4,000 lbs., blue, gray, green, pink salmon, and yellow, No. 40; flat, cut 17x28, 21x32, and 22x34 ins. Min. order, one color, 2,000 lbs.

Whitaker Paper Co.	12.80c
Stanford Paper Co.	13.45c
R. P. Andrews Paper Co.	13.75c
Paper Corp. of U. S.	13.00c

Sulphite Writing, White and Colored

No. 54—300,000 lbs., white, No. 26; flat, cut 32x42 ins.

Eastern Corp.	6.79c

No. 55—2,500,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max, width 34 ins.

Whitaker Paper Co.	5.90c
Cauthorne Paper Co. (300 tons)	7.81c
(balance)	8.21c
Eastern Corp.	6.79c
R. P. Andrews Paper Co.	5.97c
Barton, Duer & Koch Paper Co.	6.38c

No. 56—5,000,000 lbs., white, Nos. 40 and 48; flat, cut any size, min. width 21 ins., max. width 41 ins.

Cauthorne Paper Co. (500 tons)	7.71c
(500 tons)	8.11c
(balance)	8.71c
Perkins-Goodwin Co.	6.40c
Eastern Corp.	6.79c
R. P. Andrews Paper Co.	6.59c
Barton, Duer & Koch Paper Co.	6.27c

No. 57—100,000 lbs., white, No. 26; rolls, min. width 16 ins., max. width 38 ins. (3-inch fiber cores).

Cauthorne Paper Co.	7.097c
Eastern Corp.	6.56c

No. 58—800,000 lbs., white, No. 32; rolls, min. width 16 ins., max width 48 ins. (3-inch fiber cores).

Whitaker Paper Co.	5.58c
Cauthorne Paper Co.	6.49c
Eastern Corp.	6.56c
R. P. Andrews Paper Co.	5.537c
Barton, Duer & Koch Paper Co.	5.95c

No. 59—100,000 lbs., white, Nos. 40 and 48; rolls, min. width 16 ins., max. width 48 ins. (3-inch fiber cores).

Whitaker Paper Co.	5.90c
Cauthorne Paper Co.	6.49c
Eastern Corp.	6.56c
R. P. Andrews Paper Co.	6.09c
Barton, Duer & Koch Paper Co.	5.86c

No. 60—100,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, 5,000 lbs.

Cauthorne Paper Co.	7.97c

No. 61—1,200,000 lbs., blue, buff, cherry, green, pink, salmon and yellow Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, 10,000 lbs.

Old Dominion Paper Co.	7.0743c
Cauthorne Paper Co. (200 tons)	7.468c
(balance)	7.568c
Eastern Corp.	7.53c

No. 62—400,000 lbs., yellow, No. 32; rolls, 32 and 38 ins. (3-inch fiber cores).

Whitaker Paper Co.	6.55c
Cauthorne Paper Co.	6.884c
Eastern Corp.	7.18c
R. P. Andrews Paper Co.	6.69c

100 Per Cent Rag White Writing

No. 63—3,500 lbs., No. 56; flat, cut 21x32 ins. Min. order 2,500 lbs.

Old Dominion Paper Co.	23.97c
Stanford Paper Co.	24.00c

R. P. Andrews Paper Co..... 23.33c
Barton, Duer & Koch Paper Co... 25.00c

Lithograph-Finish Map

No. 64—25,000 lbs. Nos. 32 and 40, flat, cut 24x38, 30x40, 32x48, 36x52, and 38x48 ins. Min. order, one substance, 5,000 lbs.

Old Dominion Paper Co..... 9.742c

50 Per Cent Rag Lithograph-Finish Map

No. 65—300,000 lbs., Nos. 40, 48 and 56; flat, cut any size, min. width 22 ins., max. width, 48 ins., the grain to run lengthwise of the sheet.

Stanford Paper Co..... 10.86c
Barton, Duer & Koch Paper Co... 12.95c
Mathers-Lamm Paper Co.
(150,000 lbs.) 10.95c
(150,000 lbs.) 11.30c

75 Per Cent Rag Lithograph-Finish Map

No. 66—600,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Mudge Paper Co..... 12.67c
R. P. Andrews Paper Co..... 17.99c.
16.63c
Barton, Duer & Koch Paper Co... 14.45c

No. 67—60,000 lbs., Nos. 48 and 56; flat, cut any size, min. width 30 ins., max. width 48 ins.; the grain to run lengthwise of the sheet. Min. order, one substance, 5,000 lbs.

Graham Paper Co..... 17.87c
Mudge Paper Co..... 12.48c
Walker-Goulard Plehn Co..... 17.87c
R. P. Andrews Paper Co..... 16.63c
Barton, Duer & Koch Paper Co... 13.95c

100 Per Cent Rag White Chart, Lithograph-Finish

No. 69—400,000 lbs., Nos. 83 and 96; flat, cut any size, min. width 22 ins., max. width 46 ins.; packed in cases of 1,000 sheets each; the grain to run lengthwise of the sheet unless otherwise specified.

Old Dominion Paper Co..... 23.97c
R. P. Andrews Paper Co..... 18.18c
Barton, Duer & Koch Paper Co... 18.90c
Paper Corp. of U. S..... 18.56c

Sulphite Manifold, White and Colored

No. 70—150,000 lbs., white, No. 18; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size.

Whitaker Paper Co.... (50,000 lbs.) 10.50c
(50,000 lbs.) 10.75c
(50,000 lbs.) 11.00c
Graham Paper Co..... 8.50c
Ohio Wax Paper
Co. .....(less 2% 20 days) 10.75c
Paper Corp. of U. S..... 8.60c
Import Paper Co..... 9.50c

No. 71—50,000 lbs., blue, buff, green, pink, salmon and yellow, No. 18; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 5,000 lbs.

Whitaker Paper Co..... 11.50c
Graham Paper Co..... 9.35c
Ohio Wax Paper
Co. .....(less 2% 20 days) 11.50c
Paper Corp. of U. S..... 9.10c
Import Paper Co..... 10.25c

50 Per Cent Rag Manifold, White and Colored

No. 73—100,000 lbs., white, No. 14; flat, cut 21x32, 22x34, 28x34 and 38x48 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, 5,000 lbs.

R. P. Andrews Paper Co..... 20.87c
Barton, Duer & Koch Paper Co.... 17.95c
Marquette Paper Co..... 16.60c

No. 74—800,000 lbs., white, No. 18; flat, cut 21x32, 22x34, 24x38 and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size.

Stanford Paper Co.... (150,000 lbs.) 13.03c
(150,000 lbs.) 13.33c
(150,000 lbs.) 22.00c
Barton, Duer & Koch
Paper Co..... (100,000 lbs.) 14.45c
(100,000 lbs.) 14.95c
(200,000 lbs.) 15.90c
(400,000 lbs.) 17.00c
Marquette Paper Co..... 15.98c
Butler Co..... (300,000 lbs.) 12.82c
(300,000 lbs.) 13.02c
(200,000 lbs.) 13.48c

No. 75—25,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 14; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 3,000 lbs.

Barton, Duer & Koch Paper Co... 19.90c
Marquette Paper Co..... 18.25c

No. 76—250,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 21x32, 22x34, 24x38 and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 5,000 lbs.

Lee Paper Co..... 16.46c
Mudge Paper Co..... 13.57c
Barton, Duer & Koch
Paper Co..... (125,000 lbs.) 15.90c
(125,000 lbs.) 17.15c
Marquette Paper Co..... 15.98c

100 Per Cent Rag White Manifold

No. 78—5,000 lbs., No. 14; flat, cut 17x28, 19x24, 21x32, and 22x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, 5,000 lbs.

Whitaker Paper Co..... 33.00c
Old Dominion Paper Co..... 30.74c
R. P. Andrews Paper Co..... 35.87c
Barton, Duer & Koch Paper Co.... 34.00c

No. 79—25,000 lbs., No. 18; flat, cut 17x28, 19x24, 21x32 and 22x34 ins.; the grain to run the 21-inch way on the 21x32 ins. size. Min. order 5,000 lbs.

Whitaker Paper Co..... 28.50c
Lee Paper Co..... 26.96c
Old Dominion Paper Co..... 22.829c
R. P. Andrews Paper Co..... 32.37c
Barton, Duer & Koch Paper Co.... 24.90c

50 Per Cent Rag White Glazed Manifold

No. 83—200,000 lbs., No. 16; flat cut 19x24 and 21x32 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order 20,000 lbs.

R. P. Andrews Paper
Co. .....(100,000 lbs.) 18.68c
(100,000 lbs.) 19.69c
Barton, Duer & Koch
Paper Co..... (100,000 lbs.) 15.20c
(100,000 lbs.) 15.45c

Sulphite White Bond

No. 102—1,000,000 lbs., No. 40; flat, cut any size, min. width 21 ins.; max. width 37 ins.

Whitaker Paper Co..... 7.09c
Eastern Corp..... 6.79c
R. P. Andrews Paper Co..... 6.592c

25 Per Cent Rag Bond, White and Colored

No. 109—200,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins.; max. width 34 ins.

Aetna Paper Co..... 11.228c
Barton, Duer & Koch Paper Co.... 11.70c

No. 110—600,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 34 ins.

Virginia Paper Co..... 9.78c
Aetna Paper Co..... 9.974c
Stanford Paper Co..... 10.01c
, 10.39c

No. 111—1,500,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Aetna Paper Co..... (250 tons) 9.058c
(250 tons) 9.317c
(balance) 9.691c
Barton, Duer & Koch Paper Co.... 10.20c
Butler Co..... (200,000 lbs.) 9.19c
(250,000 lbs.) 9.51c
(balance) 9.93c

No. 112—1,500,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Aetna Paper Co..... (250 tons) 9.317c
(250 tons) 9.564c
(balance) 9.691c
Butler Co. ..... (200,000 lbs.) 9.19c
(250,000 lbs.) 9.51c
(balance) 9.93c

No. 113—600,000 lbs., white, No. 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Baxter Paper Co..... (200,000 lbs.) 9.54c
(300,000 lbs.) 9.94c
Aetna Paper Co..... 8.987c
Stanford Paper Co..... 9.06c
9.47c

No. 114—250,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, 5,000 lbs.

Aetna Paper Co..... 12.293c

No. 115—400,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 34 ins.

Old Dominion Paper Co..... 9.8297c
Aetna Paper Co..... 9.999c
Stanford Paper Co..... 10.37c

No. 116—700,000 lbs., blue, buff, cherry, green, pink, salmon and yellow No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Mudge Paper Co..... (200,000 lbs.) 9.19c
(200,000 lbs.) 9.34c
(300,000 lbs.) 9.59c
Aetna Paper Co..... (200,000 lbs.) 9.057c
(300,000 lbs.) 9.393c

No. 117—25,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Aetna Paper Co..... 11.246c

50 Per Cent Rag Bond, White and Colored

No. 120—100,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins.

Aetna Paper Co..... 13.373c
Barton, Duer & Koch Paper Co.... 13.55c

No. 121—1,400,000 lbs., white, Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Graham Paper Co.... (200,000 lbs.) 10.21c
(400,000 lbs.) 10.45c
(700,000 lbs.) 10.69c
Aetna Paper Co..... (200 tons) 9.975c
(balance) 10.485c
R. P. Andrews Paper Co..... 10.77c

No. 122—250,000 lbs., white, No. 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Graham Paper Co..... 10.33c
Aetna Paper Co..... 9.972c
R. P. Andews Paper Co..... 9.97c

No. 123—30,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, one substance, 2,500 lbs.

Aetna Paper Co..... 13.478c
Barton, Duer & Koch Paper Co.... 13.50c
Mathers-Lamm Paper Co..... 13.75c

75 Per Cent Rag White Bond

No. 125—2,500 lbs., No. 26; flat, cut

any size, min. width 21 ins., max. width 32 ins. Min. order, 2,000 lbs.

Mudge Paper Co..... 24.22c
Old Dominion Paper Co..... 25.23c
Stanford Paper Co..... 22.50c
Paper Corp. of U. S..... 22.25c

No. 126—2,500 lbs., Nos. 32, 40, and 48; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

Mudge Paper Co..... 19.69c
Old Dominion Paper Co..... 19.84c
Stanford Paper Co..... 19.25c
Paper Corp. of U. S..... 20.25c

100 Per Cent Rag White Bond

No. 128—10,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

Walker-Goulard Plehn Co..... 22.48c
Old Dominion Paper Co..... 19.877c
Stanford Paper Co..... 23.00c
R. P. Andrews Paper Co..... 25.29c
Barton, Duer & Koch Paper Co..... 21.95c
Paper Corp. of U. S..... 22.50c

No. 129—20,000 lbs., No. 48; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, 2,000 lbs.

Walker-Goulard Plehn Co..... 21.98c
Old Dominion Paper Co..... 19.877c
Stanford Paper Co..... 23.00c
R. P. Andrews Paper Co..... 26.73c
Barton, Duer & Koch Paper Co..... 21.95c
Paper Corp. of U. S..... 22.50c

100 Per Cent Rag Declaration Bond

No. 140—8,000 lbs., Nos. 32 and 40; flat, cut 17x22 and 22x25½ ins. Min. order, one substance, 3,000 lbs.

Walker, Goulard Plehn Co..... 25.96c
Stanford Paper Co..... 24.30c

100 Per Cent Rag Parchment Deed

No. 141—2,000 lbs., No. 64; flat, cut 33x34 ins. Min. order, 2,000 lbs.

Walker-Goulard Plehn Co..... 22.95c
Resolute Paper Products Co..... 39.10c
Old Dominion Paper Co..... 26.97c
Stanford Paper Co..... 23.00c
R. P. Andrews Paper Co..... 27.97c
Barton, Duer & Koch Paper Co..... 24.95c
Paper Corp. of U. S..... 24.00c

Sulphite White Ledger

No. 151—120,000 lbs., Nos. 56 and 64; flat, cut any size, min. width 17 ins., max. width 32 ins. Min. order, one substance, 10,000 lbs.

Whitaker Paper Co..... 7.49c
Mudge Paper Co..... 6.72c
Walker-Goulard Plehn Co..... 8.50c
Eastern Corp..... 7.86c
Stanford Paper Co..... 7.10c
Barton, Duer & Koch Paper Co..... 7.85c
Marquette Paper Co..... 7.46c

No. 152—400,000 lbs., No. 80; flat, cut any size, min. width 17 ins., max. width 32 ins.

Whitaker Paper Co..... 7.49c
Mudge Paper Co..... 6.72c
Walker-Goulard Plehn Co..... 8.50c
Eastern Corp..... 7.86c
Stanford Paper Co..... 7.10c
Barton, Duer & Koch Paper Co..... 7.85c
Marquette Paper Co..... 7.46c

25 Per Cent Rag Ledger, White and Colored

No. 154—90,000 lbs., white, Nos. 48 and 56; flat, cut 20x28, 21x32, 24x38, 28x29 and 28x34 ins. Min. order, one substance, 5,000 lbs.

Mudge Paper Co..... 10.29c
Chicago Paper Co..... 9.55c
Aetna Paper Co..... 9.933c
Mathers-Lamm Paper Co..... 10.15c

No. 155—5,000 lbs., white, No. 64; flat, cut 21x32 and 23x36 ins. Min. order, 5,000 lbs.

Mudge Paper Co..... 10.49c
Chicago Paper Co..... 10.50c
Aetna Paper Co..... 10.484c
Mathers-Lamm Paper Co..... 10.24c

No. 156—15,000 lbs., white, No. 72; flat, cut 20x28, 21x32, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Mudge Paper Co..... 10.49c
Chicago Paper Co..... 10.50c
Aetna Paper Co..... 10.485c
Mathers-Lamm Paper Co..... 10.24c

No. 157—40,000 lbs., blue, buff, green, pink, salmon and yellow, Nos. 56, 64, and 72; flat, cut 21x32, 23x36, 24x38, 26x36, and 28x34 ins. Min. order, one substance, one color, 3,000 lbs.

Graham Paper Co..... 12.63c
Walker-Goulard Plehn Co..... 12.63c
Aetna Paper Co..... 11.886c
Mathers-Lamm Paper Co..... 11.57c

50 Per Cent Rag Ledger, White and Colored

No. 160—200,000 lbs., white, Nos. 48 and 56; flat, cut 18½x36, 18½x40¼, 20x28, 21x32, 24x38, 28x29, 28x34 and 29x41 ins. Min. order, one substance, 10,000 lbs.

Mudge Paper Co..... 10.97c
Aetna Paper Co..... 10.884c
R. P. Andrews Paper Co..... 9.97c

No. 161—80,000 lbs., white, No. 64; flat, cut 21x32 and 23x36 ins. Min. order, 10,000 lbs.

Mudge Paper Co..... 10.97c
Old Dominion Paper Co..... 12.089c
Aetna Paper Co..... 10.884c
R. P. Andrews Paper Co..... 10.99c

No. 162—100,000 lbs., white, Nos. 72 and 80; flat, cut 20x28, 21x32, 24x38, 28x34 and 38x48 ins. Min. order, 10,000 lbs.

Mudge Paper Co..... 10.97c
Aetna Paper Co..... 10.884c

No. 163—100,000 lbs., white, No. 88; flat, cut 21x32½ ins. Min. order, 10,000 lbs.

Mudge Paper Co..... 11.17c
Aetna Paper Co..... 10.884c

No. 164—150,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, Nos. 56, 64, and 72; flat, cut 18½x36, 18½x40¼, 19x24, 21x32, 23x36, and 28x34 ins. Min. order, one substance, one color, 5,000 lbs.

Mudge Paper Co..... 10.77c
Aetna Paper Co..... 11.423c

No. 165—50,000 lbs. blue, buff, cherry, fawn, green, pink, salmon and yellow. No. 88; flat, cut 21x32½ ins. Min. order, one color, 5,000 lbs.

Mudge Paper Co..... 11.39c
Aetna Paper Co..... 11.423c
Barton, Duer & Koch Paper Co..... 11.95c
Mathers-Lamm Paper Co..... 12.98c

75 Per Cent Rag Ledger, White and Colored

No. 168—15,000 lbs., white, Nos. 48 and 56; flat, cut 21x32, 24x38, 28x29, and 28x34 ins. Min. order, one substance, 4,000 lbs.

Mudge Paper Co..... 14.82c
Old Dominion Paper Co..... 17.257c
Barton, Duer & Koch Paper Co..... 15.95c

No. 169—15,000 lbs., white, No. 64; flat, cut 21x32, 23x36, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Mudge Paper Co..... 14.82c
Old Dominion Paper Co..... 17.257c
Barton, Duer & Koch Paper Co..... 15.95c

No. 170—25,000 lbs., white, Nos. 72 and 80; flat, cut 20x28, 21x32, 24x38, and 28x34 ins. Min. order, one substance, 5,000 lbs.

Mudge Paper Co..... 14.72c
Old Dominion Paper Co..... 17.257c
Barton, Duer & Koch Paper Co..... 15.95c

No. 171—30,000 lbs., white, No. 88; flat, cut 21x32½ ins. Min. order, 5,000 lbs.

Mudge Paper Co..... 14.72c
Old Dominion Paper Co..... 17.257c
Barton, Duer & Koch Paper Co..... 15.95c

No. 172—20,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, Nos. 56, 64, and 72; flat, cut 21x32, 23x36, 24x38, and 28x34 ins. Min. order, one substance, one color, 3,000 lbs.

Barton, Duer & Koch Paper Co..... 16.45c

No. 173—6,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, No. 88; flat, cut 21x32½ ins. Min. order, one color, 4,000 lbs.

Graham Paper Co..... 18.22c
Walker-Goulard Plehn Co..... 18.22c
Barton, Duer & Koch Paper Co..... 16.45c

100 Per Cent Rag White Ledger

No. 176—50,000 lbs., No. 48; flat, cut 21x32, 22¾x31½, 23x36, 24x38, and 28x34 ins. Min. order, 4,000 lbs.

Walker-Goulard Plehn Co..... 21.89c
Old Dominion Paper Co..... 20.349c
Stanford Paper Co..... 24.25c
R. P. Andrews Paper Co..... 23.73c
Barton, Duer & Koch Paper Co..... 19.39c
Paper Corp. of U. S..... 19.12c

No. 177—30,000 lbs., No. 56; flat, cut 20x28, 21x32, 23x36, 24x38, and 28x34 ins. Min. order 5,000 lbs.

Walker-Goulard Plehn Co..... 21.89c
Old Dominion Paper Co..... 20.349c
Stanford Paper Co..... 24.25c
R. P. Andrews Paper Co..... 24.33c
Barton, Duer & Koch Paper Co..... 19.39c
Paper Corp. of U. S..... 19.12c

No. 178—25,000 lbs., No. 64; flat, cut 18½x42, 21x32, 23x36, and 28x34 ins. Min. order, 5,000 lbs.

Walker-Goulard Plehn Co..... 21.89c
Old Dominion Paper Co..... 20.349c
Stanford Paper Co..... 24.25c
R. P. Andrews Paper Co..... 24.33c
Barton, Duer & Koch Paper Co..... 19.39c
Paper Corp. of U. S..... 19.12c

No. 179—10,000 lbs., No. 72; flat, cut 20x28, 21x32, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Walker-Goulard Plehn Co..... 21.89c
Old Dominion Paper Co..... 20.349c
Stanford Paper Co..... 24.25c
R. P. Andrews Paper Co..... 24.73c
Barton, Duer & Koch Paper Co..... 19.39c
Paper Corp. of U. S..... 19.12c

No. 180—15,000 lbs., No. 80; flat, cut 21x32½ and 21x42 ins. Min. order, 4,000 lbs.

Walker-Goulard Plehn Co..... 21.89c
Resolute Paper Products Co..... 28.70c
Old Dominion Paper Co..... 20.349c
Aetna Paper Co..... 24.75c
R. P. Andrews Paper Co..... 22.77c
Barton, Duer & Koch Paper Co..... 19.39c
Paper Corp. of U. S..... 19.12c

No. 181—10,000 lbs., No. 88; flat, cut 20½x24¾, 21x32½ and 22¾x31½ ins. Min. order, 5,000 lbs.

Walker-Goulard Plehn Co..... 21.89c
Resolute Paper Products Co..... 28.70c
Old Dominion Paper Co..... 20.349c
Stanford Paper Co..... 24.25c
R. P. Andrews Paper Co..... 22.77c
Barton, Duer & Koch Paper Co..... 19.39c
Paper Corp. of U. S..... 19.12c

Sulphite White Index

No. 184—300,000 lbs., 22½x28½—182 and 230; flat, cut 21x32½, 22½x28½, 24½x32½ and 32½x48½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Mudge Paper Co..... 7.01c
Walker-Goulard Plehn Co..... 7.19c
Bradner Smith & Co..... 7.91c
Marquette Paper Co..... 6.83c
Paper Corp. of U. S..... 6.80c

50 Per Cent Rag Index, White and Colored

No. 190—700,000 lbs., white, 22½x28½—182 and 230; flat, cut 21x32½, 22½x28½ and 24½x32½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Old Dominion Paper Co.	10.19c
Aetna Paper Co.	10.045c
Barton, Duer & Koch Paper Co.	10.16c
Paper Corp. of U. S.	10.70c

No. 191—60,000 lbs., white, 22½x28½—280 and 362; flat, cut 21x32½ and 22½x28½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 5,000 lbs.

Walker-Goulard Plehn Co.	13.95c
Barton, Duer & Koch Paper Co.	13.66c
Paper Corp. of U. S.	11.70c

No. 192—200,000 lbs., blue, buff, fawn, green, pink, salmon and yellow, 22½x28½—182 and 230; flat, cut 21x32½ and 22½x28½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Old Dominion Paper Co.	11.16c
Aetna Paper Co.	10.245c
Barton, Duer & Koch Paper Co.	11.36c
Paper Corp. of U. S.	10.95c

No. 193—70,000 lbs., blue, buff, fawn, green, pink, salmon and yellow, 22½x28½—280 and 362; flat, cut 21x32½ and 22½x28½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Walker-Goulard Plehn Co.	14.29c
Barton, Duer & Koch Paper Co.	14.86c
Paper Corp. of U. S.	11.95c

100 Per Cent Rag White Index

No. 196—120,000 lbs., 22½x28½—approximately 206; flat, cut 20½x30½ and 21x32½ ins.

Walker-Goulard Plehn Co.	21.39c
R. P. Andrews Paper Co.	23.74c
Barton, Duer & Koch Paper Co.	18.40c
Mathers-Lamm Paper Co.	23.85c
Marquette Paper Co.	18.70c

White Tissue

No. 197—4,000 lbs., flat, 21x32—18. Min. order 1,000 lbs.

Old Dominion Paper Co.	13.77c
Mathers-Lamm Paper Co.	12.63c

Coated Cover, White and Colored

No. 201—25,000 lbs., white, 20x26—130 and 160; flat, 26½x41 ins., the grain to run lengthwise of the sheet. Min. order, 5,000 lbs.

Virginia Paper Co.	7.90c
Barton, Duer & Koch Paper Co.	7.80c

No. 202—30,000 lbs., India tint, light green ,and emerald green, 20x26—100; flat, 26½x41 ins. Min. order, 5,000 lbs.

Virgina Paper Co.	(India)	8.25c
	(Light green)	8.75c
	(Emerald Green)	9.10c
Barton, Duer & Koch Paper Co.	(India)	8.15c
	(Light green)	8.68c
	(Emerald green)	8.99c

Machine-Finish Cover, White and Colored

No. 203—500,000 lbs., antique; white, dawn, quaker drab, robin's egg, terra cotta, light blue, dark blue, buff, gold, cream, light gray, dark gray, light brown, dark brown, light green, dark green, sage, gobelin blue, and coral red; flat, 20x25—96, with projecting colored-paper marker between each 500 sheets. Min. order, one color 5,000 lbs.

Whitaker Paper Co.	11.20c
Old Dominion Paper Co.	8.089c
Bradner Smith & Co.	11.20c
Stanford Paper Co.	7.90c
R. P. Andrews Paper Co.	8.08c
Barton, Duer & Koch Paper Co.	8.45c
Marquette Paper Co.	7.61c

No. 204—70,000 lbs., smooth; white, blue, brown, granite, green, pink tea and yellow, 20x26—100; flat, cut 20x25 and 30x46 ins., with projecting color-order-paper marker between each 500 sheets. Min. order, one color, 5,000 lbs.

Whitaker Paper Co.	11.20c
Old Dominion Paper Co.	8.138c
Bradner Smith & Co.	11.20c
R. P. Andrews Paper Co.	8.13c
Barton, Duer & Koch Paper Co.	8.45c
Marquette Paper Co.	7.72c

50 Per Cent Rag Laid Cover, Colored

No. 205—60,000 lbs., blue, cream, white, gray and green, 20x26—130; flat, cut 20x25, 22x33, 26½x41, and 28x41 ins., with projecting colored-paper marker between each 500 sheets. Min. order, one color, 2,000 lbs.

Lee Paper Co.	11.72c
Old Dominion Paper Co.	10.70c
Baxter Paper Co.	11.54c
R. P. Andrews Paper Co.	11.39c
Mathers-Lamm Paper Co.	12.34c

Wood Manila

No. 209—250,000 lbs., 24x36—80 to 120; flat, cut 21x32, 22½x34½, 25x38 and 32x36 ins., in wrapped bundles with projecting colored-paper marker between each 500 sheets.

Mudge Paper Co.	4.46c
Old Dominion Paper Co.	4.4479c
Marquette Paper Co.	4.88c
Paper Corp. of U. S.	4.49c

No. 210—80,000 lbs., 24x36—80 to 120; rolls, 18, 21, and 48 ins. wide (3-inch fiber cores).

Mudge Paper Co.	4.24c
Old Dominion Paper Co.	4.228c
Marquette Paper Co.	4.64c
Paper Corp. of U. S.	4.22c

Chemical Wood Manila

No. 211—20,000 lbs., 24x36—100 to 160; flat, cut any size in wrapped bundles. Min. order, one weight, 5,000 lbs.

R. P. Andrews Paper Co.	7.65c
Paper Corp. of U. S.	6.41c

Rope Manila

No. 213—10,000 lbs., 24x36—120, 140 and 160; rolls, 18 and 48 ins. wide (3-inch fiber cores). Min. order, 5,000 lbs.

R. P. Andrews Paper Co.	19.50c

No. 214—40,000 lbs. 24x36—280; rolls, 48 ins. wide (3-inch fiber cores). Min. order, 5,000 lbs.

R. P. Andrews Paper Co.	18.50c

Drumhead Manila

No. 215—25,000 lbs., 24x36—280; flat, cut 20x30 and 26x42 ins. Min. order, 5,000 lbs.

Mudge Paper Co.	21.00c

No. 2 Kraft

No. 217—400,000 lbs., 24x36—83 to 166, flat, cut any size in wrapped bundles.

R. P. Andrews Paper Co.	4.65c

No. 218—300,000 lbs., 24x36—83 to 166; cut any size, folded (25 sheets per fold), in wrapped bundles.

R. P. Andrews Paper Co.	4.65c

No. 219—400,000 lbs., 24x36—83 to 166; rolls, 9, 10½, 11½, 24, 36, 39, and 48 ins. wide, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber cores as may be specified.

R. P. Andrews Paper Co.	4.41c

No. 1 Kraft

No. 220—5,000 lbs., 24x36—125 and 166; flat, cut any size in wrapped bundles.

Paper Corp. of U. S.	6.50c

White Paraffin

No. 251—2,000 lbs., flat, 24x38—32. Min. order, 1,000 lbs.

Nashua Gummed & Coated Paper Co.	12.35c
Superior Paper Co.	12.96c

White Gummed

No. 252—200,000 sheets, flat, 22x34 ins. Min. order, 25,000 sheets.

	Per M Sheets
Whitaker Paper Co.	$13.44
Mudge Paper Co.	13.06
Nashua Gummed & Coated Paper Co.	14.60
Walker-Goulard Plehn Co.	12.00
Old Dominion Paper Co.	11.747
Stanford Paper Co.	13.50
R. P. Andrews Paper Co.	13.73
Barton, Duer & Koch Paper Co.	13.48
Mathers-Lamm Paper Co.	12.11
Butler Co.	11.724

Blotting, White and Colored

No. 254—12,000 lbs., white, flat, 19x24—160, in wrapped bundles. Min. order, 4,000 lbs.

Whitaker Paper Co.	6.49c
Graham Paper Co.	6.25c
Mudge Paper Co.	6.06c
Virginia Paper Co.	6.10c
Superior Paper Co.	7.19c
Old Dominion Paper Co.	6.089c
Cauthorne Paper Co.	6.04c
Bradner Smith & Co.	6.25c
Perkins-Goodwin Co.	7.05c
Stanford Paper Co.	6.20c
R. P. Andrews Paper Co.	7.03c
Barton, Duer & Koch Paper Co.	6.08c
Mathers-Lamm Paper Co.	5.976c
Marquette Paper Co.	7.05c
Butler Co.	6.231c

No. 255—2,000 lbs., buff and salmon, flat, 19x24—160, in wrapped bundles. Min. order, 2,000 lbs.

Whitaker Paper Co.	7.49c
Graham Paper Co.	7.10c
Mudge Paper Co.	6.59c
Virginia Paper Co.	6.65c
Superior Paper Co.	7.29c
Old Dominion Paper Co.	6.64c
Cauthorne Paper Co.	6.59c
Bradner Smith & Co.	7.10c
Perkins-Goodwin Co.	7.15c
Stanford Paper Co.	7.10c
R. P. Andrews Paper Co.	7.21c
Barton, Duer & Koch Paper Co.	6.23c
Mathers-Lamm Paper Co.	6.514c
Marquette Paper Co.	7.15c
Butler Co.	7.172c

25 Per Cent Rag Blotting, White and Colored

No. 256—30,000 lbs., white, flat, 19x24—160, in wrapped bundles. Min. order, 10,000 lbs.

Whitaker Paper Co.	6.92c
Graham Paper Co.	7.38c
Mudge Paper Co.	7.61c
Virginia Paper Co.	7.66c
Superior Paper Co.	8.1975c
Old Dominion Paper Co.	7.648c
Cauthorne Paper Co.	7.59c
Bradner Smith & Co.	7.38c
Perkins-Goodwin Co.	8.05c
Stanford Paper Co.	7.33c
R. P. Andrews Paper Co.	7.53c
Barton, Duer & Koch Paper Co.	7.53c
Mathers-Lamm Paper Co.	7.504c
Marquette Paper Co.	8.05c
Butler Co.	7.301c

No. 257—6,000 lbs., buff and salmon, flat, 19x24—160, in wrapped bundles. Min. order, one color, 2,000 lbs.

Whitaker Paper Co.	8.03c
Graham Paper Co.	7.79c
Mudge Paper Co.	7.63c
Virginia Paper Co.	7.66c

Superior Paper Co.	8.31c
Old Dominion Paper Co.	7.648c
Cauthorne Paper Co.	7.59c
Bradner Smith & Co.	7.79c
Perkins-Goodwin Co.	8.15c
Stanford Paper Co.	7.74c
R. P. Andrews Paper Co.	8.03c
Barton, Duer & Koch Paper Co.	7.56c
Mathers-Lamm Paper Co.	7.504c
Marquette Paper Co.	8.15c
Butler Co.	7.79c

Desk Blotting, Colored

No. 258—5,000 lbs., blue and buff flat, 19x24—200, in wrapped bundles. Min. order, one color, 5,000 lbs.

Whitaker Paper Co.	6.52c
Graham Paper Co.	6.70c
Mudge Paper Co.	6.57c
Virginia Paper Co.	6.59c
Superior Paper Co.	7.09c
Old Dominion Paper Co.	6.58c
Cauthorne Paper Co.	6.53c
Bradner Smith & Co.	6.70c
Perkins-Goodwin Co.	6.95c
Stanford Paper Co.	6.64c
R. P. Andrews Paper Co.	5.97c
Barton, Duer & Koch Paper Co.	6.57c
Mathers-Lamm Paper Co.	6.456c
Marquette Paper Co.	6.95c
Butler Co.	6.682c

No. 259—120,000 lbs. moss-green, flat, 19x24—200, in wrapped bundles. Min. order, 10,000 lbs.

Whitaker Paper Co.	5.93c
Graham Paper Co.	6.75c
Mudge Paper Co.	6.44c
Virginia Paper Co.	6.42c
Superior Paper Co.	7.18c
Old Dominion Paper Co.	6.477c
Cauthorne Paper Co.	6.398c
Bradner Smith & Co.	6.75c
Perkins-Goodwin Co.	7.05c
Stanford Paper Co.	6.69c
R. P. Andrews Paper Co.	5.57c
Barton, Duer & Koch Paper Co.	6.37c
Mathers-Lamm Paper Co.	6.35c
Marquette Paper Co.	7.05c
Butler Co.	6.571c

Oiled Manila Tympan

No. 262—30,000 lbs., 24x36—approximately 210; rolls, 38 and 48 ins. wide; 10-inch diameter; wound on wooden plugs, 1½-inch hole. Min. order, 5,000 lbs.

Link Paper Co.	8.74c
R. P. Andrews Paper Co.	9.25c
Cromwell Paper Co.	9.00c

Plate-Wiping, for Embossing Presses

No. 263—5,000 lbs., 24x36—100; rolls, 24 ins. wide (3-inch fiber cores). Min. order, 1,000 lbs.

R. P. Andrews Paper Co.	8.95c
Barton, Duer & Koch Paper Co.	8.00c

Back-Lining for Case-Making Machines

No. 264—5,000 lbs., 24x36—180; rolls, 24 ins. diameter, 37 ins. wide (3-inch fiber cores). Min. order, 2,000 lbs.

Barton, Duer & Koch Paper Co.	4.39c

High-Finish Red Sulphite

No. 265—10,000 lbs., flat, 24x36—320 and 400, in wrapped bundles. Min. order, 5,000 lbs.

Whitaker Paper Co.	9.00c
Mudge Paper Co.	7.50c
Old Dominion Paper Co.	7.238c

High-Finish Sulphite Manila Tag

No. 271—70,000 lbs., 24x36—160 to 280; flat, cut any size, min. width 24 ins., max. width 38 ins., in wrapped bundles.

R. P. Andrews Paper Co.	7.25c
Paper Corp. of U. S.	6.32c

Calendered Tag, Manila and Colored

No. 276—600,000 lbs., manila, 22½x28¾—150; rolls, 23¼ and 26½ ins. wide (6-inch iron cores).

Barton, Duer & Koch Paper Co.	8.00c
Paper Corp. of U. S.	7.99c

No. 277—150,000 lbs., blue, brown, green, ivory, pink, red, salmon and yellow, 22½x28½—150; rolls 23¼ and 26½ ins. wide (6-inch iron cores). Min. order, one color, 10,000 lbs.

Barton, Duer & Koch Paper Co.	9.00c

Jute Tag

No. 280—150,000 lbs., 22½x28½—200 and 280; flat cut 22½x28½ ins., in wrapped bundles. Min. order, one weight, 10,000 lbs.

Whitaker Paper Co.	11.00c
Mudge Paper Co.	10.00c
Old Dominion Paper Co.	8.5814c

Manila Board

No. 281—40,000 lbs., 22½x28½—400; flat, cut 17x28, 21x32, and 22½x28½ ins., in wrapped bundles with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Bartgis Bros. Co.	4.375c
Paper Corp. of U. S.	5.35c

Railroad Board, White and Colored

No. 302—50,000 sheets, white, flat, 22x28 ins., 4-ply, each 100 sheets fully banded, packed in wooden cases. Min. order, 10,000 sheets.

	Per M. Sheets
Whitaker Paper Co.	$25.94
Virginia Paper Co.	24.90
Old Dominion Paper Co.	24.464
Bradner Smith & Co.	24.65
Stanford Paper Co.	24.60
R. P. Andrews Paper Co.	23.93
Barton, Duer & Koch Paper Co.	23.75
Paper Corp. of U. S.	24.65

No. 303—40,000 sheets, white, flat, 22x28 ins., 8-ply, each 100 sheets fully banded, packed in wooden cases. Min. order, 5,000 sheets.

	Per M Sheets
Whitaker Paper Co.	$37.10
Virginia Paper Co.	34.68
Old Dominion Paper Co.	33.998
Bradner Smith & Co.	34.30
Stanford Paper Co.	34.25
R. P. Andrews Paper Co.	34.27
Barton, Duer & Koch Paper Co.	33.95
Paper Corp. of U. S.	34.32

No. 304—30,000 sheets, white, flat, 22x28 ins., 14-ply, each 50 sheets fully banded, packed in wooden cases. Min. order, 5,000 sheets.

	Per M Sheets
Whitaker Paper Co.	$51.41
Virginia Paper Co.	48.04
Old Dominion Paper Co.	45.898
Bradner Smith & Co.	46.25
Stanford Paper Co.	46.20
R. P. Andrews Paper Co.	46.19
Barton, Duer & Koch Paper Co.	45.78
Paper Corp. of U. S.	47.56

No. 305—40,000 sheets, ash gray, blue, buff, green, lemon and orange, flat 22x28 ins., 4-ply, each 100 sheets fully banded, packed in wooden cases. Min. order, one color, 5,000 sheets.

	Per M Sheets
Virginia Paper Co.	$32.83
Old Dominion Paper Co.	32.249
Bradner Smith & Co.	32.50
Stanford Paper Co.	32.45
R. P. Andrews Paper Co.	32.47
Barton, Duer & Koch Paper Co.	32.15
Paper Corp. of U. S.	32.50

Wood Bristol, Colored

No. 306—200,000 lbs., buff 22½x28½—150; rolls, 22 ins. wide (6-inch iron cores).

Mudge Paper Co.	4.84c
Old Dominion Paper Co.	4.6447c
Barton, Duer & Koch Paper Co.	5.35c
Marquette Paper Co.	4.88c

No. 307—100,000 lbs., blue, buff, gray, green, melon, pink, quaker-drab and yellow, flat, 21x31—204; in wrapped bundles with projecting colored-paper marker between each 100 sheets.

Old Dominion Paper Co.	5.344c
Barton, Duer & Koch Paper Co.	5.75c

No. 308—80,000 lbs., blue, brown, buff, gray, green, melon, pink and yellow, 22½x28½—200; rolls, 20 in. wide (6-in. iron cores).

Old Dominion Paper Co.	4.983c
Barton, Duer & Koch Paper Co.	5.35c

No. 309—50,000 lbs., blue, brown, buff, gray, green, melon, pink and yellow, 22½x28½—200; rolls, 20 ins. wide (6-inch iron cores).

Old Dominion Paper Co.	4.983c
Barton, Duer & Koch Paper Co.	5.35c

No. 310—40,000 lbs., buff, 22½x28½—200; flat, cut 12x18 and 14½x17½ ins., the grain to run lengthwise of the sheet, in wrapped bundles with projecting colored-paper marker between each 100 sheets.

Old Dominion Paper Co.	5.047c
Barton, Duer & Koch Paper Co.	5.50c

United States Postal Card Bristol

No. 325—3,000,000 lbs., 22½x28½—188; rolls, 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

Whitaker Paper Co.	5.45c
R. P. Andrews Paper Co.	5.34c

No. 326—3,000,000 lbs., 22½x28½—188; rolls, 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

Whitaker Paper Co.	(750 tons)	5.37c
	(750 tons)	5.52c
R. P. Andrews Paper Co.		5.49c
Barton, Duer & Koch Paper Co.		5.44c

Pressboard, Colored

No. 351—20,000 sheets, red, flat, 24x32 ins., thickness .0140 inch. Min. order, 5,000 sheets.

	Per C Sheets
Whitaker Paper Co.	$6.88
Barton, Duer & Koch Paper Co.	6.85

No. 352—8,000 sheets, gray, flat, 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.

	Per C Sheets
Whitaker Paper Co.	$21.76
Walker-Goulard Plehn Co.	18.21
Resolute Paper Products Co.	18.564
Barton, Duer & Koch Paper Co.	18.85
Bird & Son, Inc.	17.68

News Board

No. 360—5,000 lbs., flat, 26x38 ins., No. 100 (to be trimmed square on four sides). Min. order, 1,000 lbs.

Whitaker Paper Co.	2.445c
Mudge Paper Co.	2.401c
Virginia Paper Co.	2.50c
Resolute Paper Products Co.	2.475c
Old Dominion Paper Co.	2.47c
Bartgis Bros. Co.	3.80c
Stanford Paper Co.	2.50c
R. P. Andrews Paper Co.	2.47c
Barton, Duer & Koch Paper Co.	2.50c

Chip Board

No. 361—1,200,000 lbs., 26x38 ins., No. 50, flat; cut 21½x32½, 24½x38, 26x38, 28½x34½, 32½x42½ and 34x44.

Whitaker Paper Co.	2.137c
Mudge Paper Co.	2.148c
Walker-Goulard Plehn Co.	2.25c
Virginia Paper Co.	2.18c
Resolute Paper Products Co.	2.1825c
Old Dominion Paper Co.	2.174c
Cauthorne Paper Co.	2.341c
Stanford Paper Co.	2.25c
R. P. Andrews Paper Co.	2.17c
Barton, Duer & Koch Paper Co.	2.1475c

Marble Grained Lined Board

No. 362—20,000 lbs., 26x38 ins., No. 50; flat, cut 22x32 ins.

Old Dominion Paper Co.	4.843c
Mathers-Lamm Paper Co.	5.17c

Strawboard

No. 363—7,000 lbs., flat, 26x38 ins., No. 50.

Mathers-Lamm Paper Co.	4.99c

Lined Chip Board

No. 364—5,000 lbs., flat, 26x38 ins., No. 50.

Whitaker Paper Co.	2.785c
Mudge Paper Co.	2.7535c
Virginia Paper Co.	2.875c
Old Dominion Paper Co.	2.84c
Stanford Paper Co.	2.875c
R. P. Andrews Paper Co.	2.87c
Barton, Duer & Koch Paper Co.	2.875c

Lined Box Board

No. 365—36,000 lbs., 26x38 ins., No. 40; flat, cut 24½x34 ins. Min. order, 36,000 lbs.

Whitaker Paper Co.	2.625c
Mudge Paper Co.	2.629c
Walker-Goulard Plehn Co.	2.75c
Virginia Paper Co.	2.75c
Resolute Paper Products Co.	2.7475c
Old Dominion Paper Co.	2.263c
Stanford Paper Co.	2.75c
R. P. Andrews Paper Co.	2.70c
Barton, Duer & Koch Paper Co.	2.69c

Binder's Board, No. 1 Quality

No. 366—300,000 lbs., flat, to trim 25x30 ins., Nos. 16, 18, 20, 25, 30 and 40.

Consolidated Paper Co.	3.85c
R. P. Andrews Paper Co.	3.75c
Barton, Duer & Koch Paper Co.	3.80c
Mathers-Lamm Paper Co.	3.55c

No. 367—80,000 lbs., 25¾x30¾ ins., Nos. 12 and 20; flat, to trim 34x44 ins.

Consolidated Paper Co.	3.85c
R. P. Andrews Paper Co.	3.75c
Barton, Duer & Koch Paper Co.	3.80c
Mathers-Lamm Paper Co.	3.55c

Binder's Board, Best Quality

No. 368—80,000 lbs., flat, to trim 20x30 ins., and 22x28 ins., Nos. 18, 20, 25, 30, 35, 40 and 45. Min. order, 5,000 lbs.

Consolidated Paper Co.	5.05c
R. P. Andrews Paper Co.	5.17c
Barton, Duer & Koch Paper Co.	5.20c

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 21, 1941—Government Printing Office has received the following bids for 23,229 pounds (156,950 sheets) of 25% rag, 32½ x 42½ white mimeograph paper; Aetna Paper Company, 8.47 cents; Barton, Duer & Koch Paper Company, 9.25 cents; and R. P. Andrews Paper Company, 10.25 cents.

For 138,000 pounds of 23 x 34½ white cloth lined cover paper; Mudge Paper Company, at $95.92 per M sheets, $94.91, $94.42, and $93.41; Middlesex Products Corporation, $96.00; Barton, Duer & Koch Paper Company, $93.88; Whitaker Paper Company, $95.24, $94.24, $93.75, and $92.76; Stanford Paper Company, $96.96, $95.96, $95.46, and $94.46; and Nashua Gummed and Coated Paper Company, $104.00.

For 3,145 sheets of 17 x 22 green gummed paper: Whitaker Paper Company, $9.95 per M sheets; Mathers-Lamm Paper Company, $10.50; R. P. Andrews Paper Company, $10.90; and Barton, Duer & Koch Paper Company, $15.00.

For 72,820 pounds (110,000 sheets) of 50% rag, 45½ x 68 white ledger paper; Mudge Paper Company, 11.12 cents; Stanford Paper Company, 10.85 cents; and Paper Corporation of U. S., 11.82 cents.

For 51,273 pounds of 25% rag, various sizes; Aetna Paper Company, 9.86 cents; Butler Company, 9.87 cents; Graham Paper Company, 9.71 cents; Stanford Paper Company, 9.7 cents; and Mudge Paper Company, 10.04 cents.

For 69,350 pounds (412,800 sheets) of 50% rag, 34½ x 45½ white bond paper; Aetna Paper Company, 10.63 cents; Butler Company, 10.33 cents; and Paper Corp. of U. S., 11.69 cents.

For 30,000 pounds of 25 x 38 brown calendered tag board; Barton, Duer & Koch Paper Company, 9.75 cents; and Paper Corporation of U. S., 8.95 cents. For 30,000 pounds same 20 x 25. Same bidders, same prices.

For 60,000 pounds of 38 x 48 offset book paper; Aetna Paper Company, 7.62 cents; Maxwell Paper Company, 7.94 and 7.78 cents; and R. P. Andrews Paper Company, 7.24, 7.11 and 6.96 cents.

For 21,812 pounds of 50% rag, 42½ x 58½ white bond paper; R. P. Andrews Paper Company, 11.93 cents; Stanford Paper Company, 15.5 cents; Butler Company, 10.33 cents; and Paper Corp. of U. S., 11.7 cents.

For 30,030 pounds of 50% rag, 36 x 50 white ledger paper; R. P. Andrews Paper Company, 12.17 cents; Stanford Paper Company, 15.5 cents; Butler Company, 11.05 cents; and Paper Corporation of U. S., 11.85 cents.

Forests of the South

The forests of the South will play an increasing part in remedying the economic and social ills of that section, says the 20th annual report of the Southern Forest Experiment Station, just released by E. L. Demmon, director.

The diversion of land and labor from cotton, as the acreage planted dropped from 46 million acres in 1925 to less than 25 million in 1939, a trend likely to continue, points to the need for readjustments in land use and additional opportunities for permanent employment. "Southern forest lands, under good management, are capable of providing continuous employment and hence higher standards of living for at least double the number of persons they now support. The idleness or only partial use of many millions of acres of southern forest lands, unsuited to or not needed for farming, represents a great economic loss to the region and to the United States," says the report.

Progress in the application of forestry methods, especially during the last 20 years, has been encouraging, the report points out, and the work of the experiment station has provided technical guidance for southern forest-land owners and others in effecting these improvements. In 1940 about 10 per cent of the non-farm commercial forest area was being managed with the objective of continuous forest production.

The darker side is that during the last few years, on the average, 20 per cent of the forest area has burned over, and most of the stands are greatly understocked. Too much cutting is still done with little or no regard for the future, especially in the operations of the thousands of small portable mills in this region. Many millions of acres of southern forest lands are in need of planting if they are to grow timber crops in a reasonable time and adequately safeguard soil and water resources, according to the report.

Consolidated Paper Co. Raises Pay

MONROE, Mich., May 19, 1941—Employees of two Monroe paper companies have been awarded pay raises. Nearly 3,000 workers at the Consolidated Paper Company plants here and at River Rouge and Aurora, Ill., will receive 10 cents more an hour, plus a week's vacation with pay, effective June 1. About 1,000 employees of the River Raisin Paper Company got a five-cents-an-hour increase and a week's vacation with pay.

PAPER
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Henry J. Berger
EDITOR

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COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Twenty-second Annual Convention, Poland Spring House, Poland Spring, Me., June 17-19.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Ann Arbor, Mich., September 16-19.

BUSINESS TREND

The upward trend in business and the widespread wage increases have increased payrolls to the highest peak in history. Farm income is also high and rising rapidly. The leading paper mills are reporting substantial backlogs of orders as the production ratio reached 100% this month. Business is booming, with the prospect of a shortage in some lines to meet all the rapidly increasing demands. Rationing, which will divert goods valued at more than $6,000,000,000 from civilian to military uses next year, is generally viewed to mean a shortage, with speculative buying to secure available goods, and strong pressure for price increases.

To avoid inflation and reduce excess income, it has been suggested by several government officials to levy high taxes on commodities competing with materials essential for self defense. In speaking at the opening session of the National Association of Mutual Savings Banks, which met in Philadelphia May 7, Daniel W. Bell, Under-Secretary of the Treasury, said that increased taxation at this time was an important economic advantage. He went on to say that the Treasury's proposed $3,500,000,000 tax increase actually represented less than 4% of the national income in the fiscal year 1942, and that the total national defense expenditures probably would not exceed 15% of the estimated national income of about $90,000,000,000.

Discussing the "economic advantages" favoring higher taxes now, Mr. Bell said: "Higher tax revenues during a period of rapidly expanding business activity are an important instrument for putting the brakes upon an inflationary rise in prices. If the government succeeds in taking away from individuals and corporations by taxation purchasing power that otherwise would be spent in competition with expenditures for defense, which must be spent in any case, then the total monetary demand for goods and services to that extent will be reduced. The pressure for increased prices accordingly will be lessened. In other words, the government by its tax program hopes to divert purchasing power from use by individuals and corporations to the government's defense program and in this way to facilitate the shift of our productive resources from non-defense to defense goods."

The Treasury was particularly concerned to prevent an expansion of demand deposits, not savings bank deposits, Mr. Bell said. "The deposits of savings banks," he explained, "can be expanded only when some one does not spend all his income but instead places a part of it in a savings account. However, demand deposits can be expanded without any one having to curtail expenditures, so that an expansion of such deposits may lead to an increase in total spending and thus prices. It is this which the Treasury seeks to prevent. On the other hand, if the savings of the public are gathered by the savings banks and used to buy government bonds, there will be the same restriction of spending as takes place when savings bonds are sold directly to individuals. The Treasury, therefore, considers it desirable to sell as many of its bonds as possible without further expanding demand deposits. As a second important step in the direction of preventing an inflation, this decision will, I am sure, meet with universal approval."

In commenting on keeping prices in lines, the *Business Bulletin* of the LaSalle Extension University for May said in part: "The cost of the defense program will not be so great nor will the later readjustments be so complicated and disturbing if prices can be kept from going too high. To combat the rising price trend, the Office of Price Administration and Civilian Supply was organized last month by the Federal Government. It will attempt to maintain price stability. Since prices which one manufacturer receives for his product are costs to another manufacturer who uses those products, it will also try to maintain reasonable relationships among the prices of different commodities. In that way, the manufacturers will be relieved of worry about the future course of prices, and can concentrate upon their main task, that of producing goods."

Continuing, the article states that, "Price reflects the interaction between the supply of a commodity and the demand for it. Apart from direct price fixing by Government or by industry, the price of a commodity can be controlled to a certain extent by regulating either the supply or the demand. When demand is greater, as at present, a policy that tries to increase supply will help to keep the price from rising. That policy of making larger supplies avail-

able is now being attempted. If it is successful, it will not only help maintain better balance among commodities, but also provide more commodities for the consumer. It will then keep the general standard of living higher than it would be if prices were to rise considerably."

In commenting on the subject that business faces higher costs, the *Bulletin* states that, "Materials, wages, and taxes are the three major items in the cost of operation for most businesses. All have been rising for some time, but the greatest changes during the past month have been the increase in wage rates for several major industries. Coal miners have received $1 a day increase. Wages in the steel industry have been boosted 10 cents an hour, which represents an increase of about 16%. This increase is estimated to cost the industry approximately $125,000,000 during this year, or about half as much as the total net profit of the industry in 1940."

Trends in consumption are viewed as favorable in the analysis of the current general business situation in the *Bulletin*, which said in part: "Consumers are buying more goods this year than they did a year ago; about 13% more during the first quarter of the year. This increase was due entirely to larger domestic consumption. Sales to foreign buyers, as indicated by export trade, have been lower than they were a year ago. All classes of retail stores have reported gains in sales . . . Large consumer purchasing power, combined with heavy demand from Government for the products of industry, will help maintain industrial activity at a high level indefinitely. Interruptions and moderate declines may take place, but they are likely to be temporary and, until general conditions change considerably, will be followed by advances to new peaks."

Announce "Proving-Ground" Plan

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 19, 1941—The Scott Paper Company announced a new "proving-ground" plan or a new business plan offered to prospects for the Soft-Tuft Towel, at a sales meeting of Carter Rice & Co. Corp., held at the latter's office Saturday morning. The proposition is an opportunity to prove that they can have the Soft-Tuft Towel without additional cost if their present buying costs are as much as 30 per cent less than those of Soft-Tuft. Frank McGowan of the Scott Paper Company gave the talk, with John Halkyard, head of the wrapping paper department of Carter Rice company, presiding.

Sidney Roofing Co. To Build

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., May 17, 1941—Erection of a new plant to augment the manufacturing output of the Sidney Roofing and Paper Company at Victoria, B. C., will be commenced at once. The new building will be erected at Hospital Point on the industrial reserve adjoining the city of Victoria and will cost approximately $60,000.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
April 5	93.9	April 6	79.4
April 12	94.9	April 13	81.8
April 19	94.5	April 20	86.5
April 26	98.3	April 27	89.4
May 3	100.1	May 4	89.3
May 10 (Prelim.)	*100.9*	May 11	88.6
(7-day operations prevalent)			

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	89.1	84.7	82.3	84.3	90.0	92.1	85.3
1941	85.1	89.4	92.3	*96.7*	...	...	...
Year		Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940		85.1	81.5	85.5	84.9	80.9	85.6
1941		...	...	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date..	68.3	77.8	89.6	67.5	80.2	85.7	*91.3*
Year Average..	70.0	80.4	79.8	71.5	83.4	85.6	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	81	82	*83*	..	..	..	..	..	..	..	..	..

Week ending Apr. 5, 1941—83 Week ending Apr. 26, 1941—84
Week ending Apr. 12, 1941—85 Week ending May 3, 1941—83
Week ending Apr. 19, 1941—78 Week ending May 10, 1941—*84*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Kraft Paper Prices Stabilized

[FROM OUR REGULAR CORRESPONDENT]

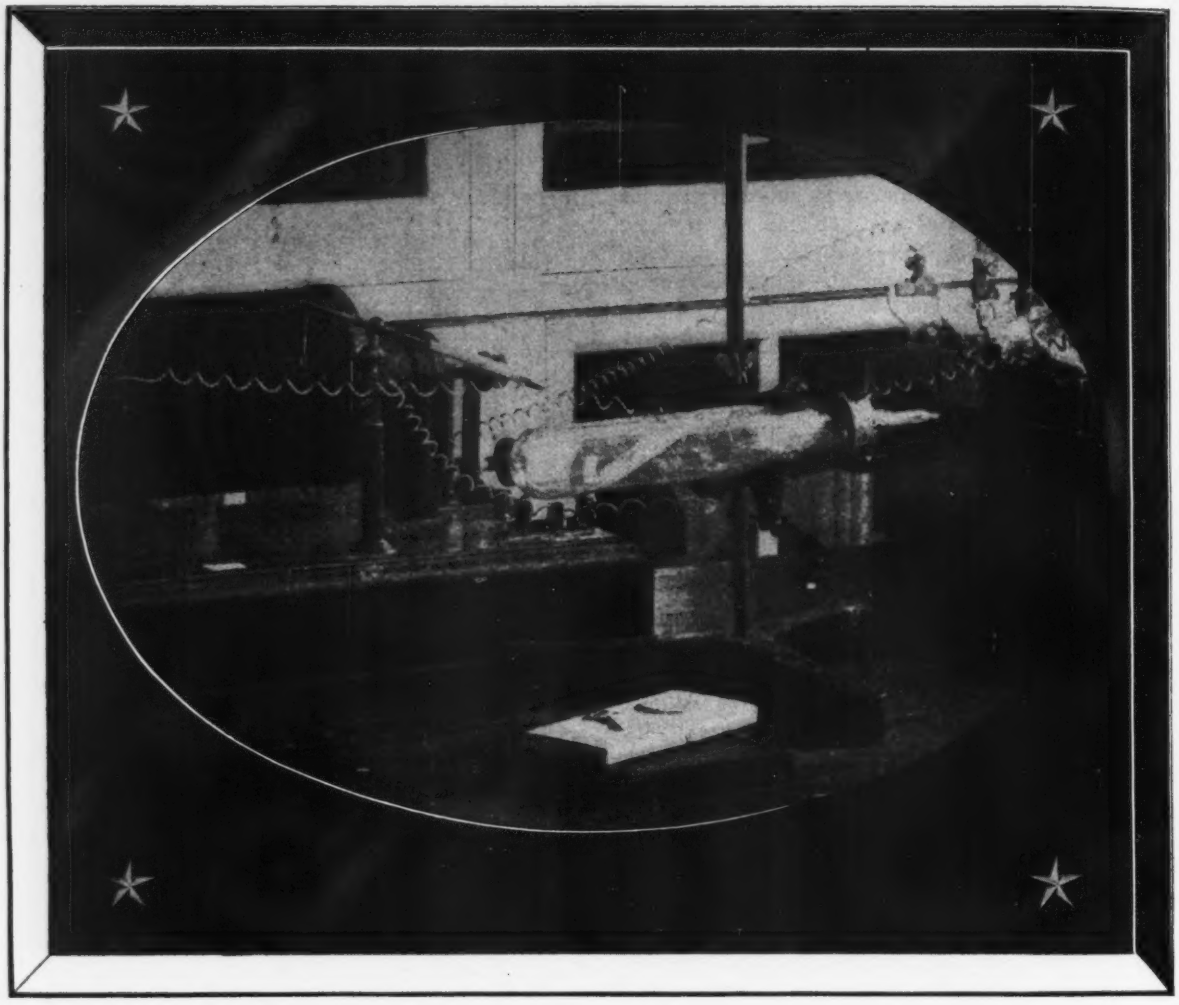
WASHINGTON, D. C., May 21, 1941—In response to requests for cooperation made by Leon Henderson, Administrator, Office of Price Administration and Civilian Supply, each of nine leading producers in the kraft paper industry have stated their policy is not to increase their present prices on standard grades of kraft wrapping paper during the balance of the current year.

The companies involved accounted for substantially over half of kraft paper production during 1940. They include: Advance Bag and Paper Company, Chicago; Crown Zellerbach Corporation, San Francisco; E-Z Opener Bag Company, Tuscaloosa, Ala.; Gaylord Container Corporation, St. Louis, Mo.; Mosinee Paper Company, Chicago; Southern Kraft Corporation, New York; Tomahawk Kraft Company, Tomahawk, Wis.; Union Bag and Paper Company, New York; and West Virginia Pulp and Paper Company, New York.

The decision of these companies, it is believed in the industry, will prevent development of speculative prices and excessive inventory building on wrapping paper.

Mr. Henderson hailed action by these paper companies as an outstanding example of business statesmanship.

"This will assure the trade of stability in the price of standard grades of kraft wrapping paper and it sets an example which may well be followed in other important industries," he said. "Wide-spread adoption of this practice by individual companies in an industry would provide powerful support for the whole price stabilization program."



They Started Something!

THE DISCOVERY of the X-ray with its amazing properties opened a new era in medical science and in industrial progress. It made possible striking contributions to human welfare, through its use in studying bone fractures, examining tissues and organs, and treating diseases.

Industry soon found in the X-ray a tool of even greater utility both for the inspection of products and for the uncovering of new basic knowledge of materials. The examinations of castings and welds to detect the presence of hidden defects; the study of internal stresses in rapidly moving objects; the development of the entire field of diffraction analysis, which has cast new light on physical and chemical changes in a wide variety of materials: these are among the advances made possible in industry by the utilization of the X-ray.

When the engineers of EBG first made Liquid Chlorine commercially available in America, they, too, made striking contributions to human health and to industrial progress. Municipalities found in EBG Liquid Chlorine a highly effective means of preventing the spread of water-borne diseases, through its use in purifying water supplies. Today EBG Liquid Chlorine is constantly expanding its utility in the newer field of sewage sterilization. And in industry, the use of EBG Liquid Chlorine as a bleaching agent enabled the manufacturers of paper and textiles to set new standards of efficiency, quality, and economy in their manufacturing processes.

The first cylinder of Liquid Chlorine made by EBG in 1909.

You can profit by the *extra* experience of EBG engineers in the manufacture and servicing of Liquid Chlorine.

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Plant: Niagara Falls, N.Y.

EBG Liquid Chlorine
FIRST IN THE COUNTRY

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Disk Refiners in the Paperboard Industry*

By W. H. Hall[1]

Abstract

This paper points out applications of disk refiners. Due to the characteristics of strength development with low power consumption, complete defibering of fiber bundles with production of a minimum of short fibers and highest possible freeness, it is suitable for almost any liner or filler stock preparation.

While the disk refiner is not particularly new to the paper industry as a whole, its application, outside of those mills in the industry making 0.009-inch material from chestnut chip and more recently in the southern kraft mills making Fourdrinier liner has been largely neglected by the paperboard manufacturers as a means of stock preparation.

Stock preparation for a typical multicylinder board machine becomes rather complex as the various plies are made up from one to four different stocks of differing properties, prepared from a wide variety of raw materials by different refining methods. The type and percentage of each may vary widely from day to day and even from hour to hour as various weights and grades are run on the machine. A high degree of flexibility is required in any stock preparation equipment to meet these conditions.

A typical folding boxboard may be made up of three stocks consisting of a top liner, several plies of filler, and a bottom liner. The disk refiner offers certain definite advantages which will be considered separately for each.

Filler Stock

Filler stock makes up the largest percentage of material to be prepared and will account for 100% of the furnish in unlined chipboards. It is usually made from mixed papers which carry large amounts of non-papermaking materials. Tramp metal, glass, wood, rubber, cellophane, cork, and similar materials may amount to as much as 20%. The mill operator's problem is twofold; first, to separate and pliabilize the individual fibers without reduction in length of the fibers or the production of fines and, second, to remove undesirable material from the stock without loss of fiber.

Common practice involves the use of a breaker beater with continuous stock extraction and means for removing heavy tramp material, rags, and strings. This stock is then diluted with white water, settled in a riffler to remove small particles of heavy material, screened, thickened and lightly jordanned. This set-up is effective in removing metal or other materials of high specific gravity but does not remove cork, cellophane, and rubber. Fine screening will result in cleaner stock but the loss of fiber is increased while coarse screening fails to remove much of the undesirable material.

The disk refiner can be operated at high speed with large clearance between the plates, completely defibering the paper without loss of fiber length and leaving materials such as rubber and cellophane untouched and easily removable by screening after refining. The refiner, running with plates well separated, produces its results without metal to metal contact largely by turbulence which rolls and twists the fibers through innumerable small vortices. More homogenous material is little affected by this treatment.

Some observation of cleanliness of handsheets made up in the laboratory from stock prepared by this system indicates that even waste paper stock artificial-

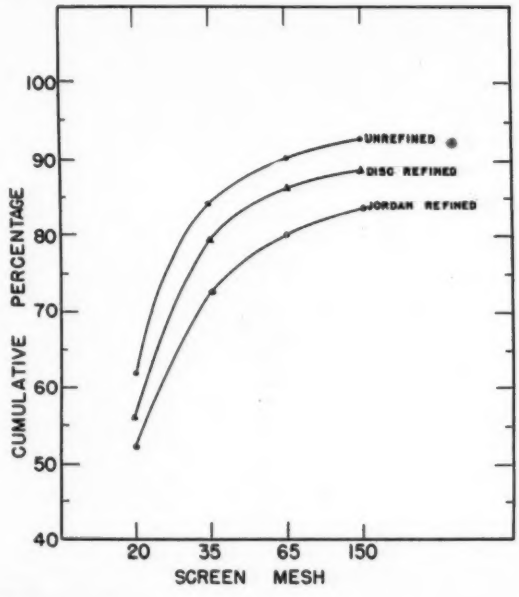

FIG. 1
Comparison of Fiber Length of Kraft Liner Stock Disk and Jordan Refined to Develop Equal Strength

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TABLE I.—COMPARISON OF DISK REFINER *VERSUS* JORDAN ON FILLER STOCKS

Sheet	Furnish	Treatment	Power, Hp. days per ton	Freeness (Green) %	Burst, %	Tear, g. per 100 lb.	Tensile, lb. per 100 lb., 1-in strip
Chip	Mixed papers	Jordan	Approx .6	157	44.2	102	33.8
Chip	Mixed papers	Disk refiner	3.62	242	40.2	102	30.2
Filler	Mixed papers	Continuous finishing beater and jordan	Approx. 6.25	180	37.2	104	28.6
Filler	Mixed papers	Disk refiner	5.51	248	38.5	120	31.3

TABLE II.—COMPARISON OF REFINING OF DISK REFINER *VERSUS* JORDAN ON KRAFT LINER STOCKS

Sheet	Furnish	Treatment	Freeness Drop, (Green), per hp. Day per Ton Expended, cc.	Burst Gain per hp. day per Ton Expended, %	Tear Change per hp. Day per Ton, g.	Tensile Gain per hp. Day per Ton, lb.
Kraft liner	100% Virgin kraft	Jordan	5.3	4.84	— 0.43	1.0
		Disk refiner	1.90	8.02	No change	1.81
		Disk refiner	5.39	5.32	+ 1.39	1.98
Kraft liner	60% Virgin kraft 40% Repulped kraft waste	Jordan	8.3	3.58	+ 7.96	1.90
		Disk refiner	6.29	3.55	+24.3	1.88
		Disk refiner	10.4	5.2	+28.5	1.98

ly loaded with foreign materials far in excess of that common in the industry will produce clean stock without increased loss of good fiber at the screen.

Several examples of refiner performance are reported in Table I.

Top Liner Stock

Top liner is generally composed of virgin pulps or mixtures of virgin pulps and clean, carefully selected wastes from paper converting operations. No problem of removing foreign material exists and the process is the development of stock to form a sheet having the desired physical properties. General practice here has paralleled that of other branches of the paper industry with the use of beaters and jordans.

The disk refiner will increase burst and tensile strengths rapidly without loss of tear and excessive drop in freeness, with a minimum power consumption. Freeness is subject to accurate control through adjustment of the variables entering into the operation and may be maintained or lowered at will. Usually, it is more economical, however, to operate a refiner in tandem with a jordan and to use the jordan to reduce freeness where a substantial reduction in freeness is desired.

Performance of refiners on kraft liner stocks is reported in Table II and Fig. 1.

Bottom Liner

Stock for bottom liner is usually clean waste paper and requires only complete defibering and pliabilizing of the individual fibers. Shortening of fibers and reduction of freeness are undesirable since the stock has been prepared for the paper machine once and it is necessary only to restore it as far as possible to that original condition.

As in the case of filler stock the disk refiner produces the required defibering with lower power consumption and negligible reduction in fiber length and freeness drop.

Under Liner

In the production of high grade folding boards many mills resort to a ply of under liner between the top liner and the body of the sheet. This under liner is usually made of carefully sorted white waste papers for which the mill must pay a special premium. This ply serves to prevent any show-through of spots in the filler stock on the outside surface of the container and allows the expensive top liner to be made thinner than might otherwise be required.

Mills operating these refiners on this stock have found it no longer necessary to purchase specially selected all white paper. Defibering action is so thorough that stock containing some colored paper, which can be purchased at much lower cost than all white stock, is entirely satisfactory. No troublesome spots of colored broke are left to show through the top liner as is the case when an attempt is made to work up colored stocks by a beater and jordan combination.

The question of plate life is always of interest to the mill operator and it is a popular misconception that plate life must be short. This is not borne out in practice. No metal to metal contact is necessary for work to be done in the paperboard mill. Proper plate design and correct choice of plate material largely eliminate any difficulties with wear and corrosion. From mill operation of disk refiners with which the author is familiar plate cost will hardly exceed 3 cents per ton of stock.

Conclusions

The disk refiner is no cure all for every stock preparation problem. It does not supplant all our existing machinery for stock preparation but rather supplements present beaters, jordans, and similar equipment. Nevertheless its characteristics of complete disintegration of fiber aggregations without dispersion of foreign materials, high strength development with lower power consumption, minimum shortening of individual fibers, and small freeness drop make it a flexible tool for production of a better board.

Forests of South Georgia

The most intensively used forest area in the United States is probably the 10 million acres of piney woods in South Georgia, according to a recent survey by the Forest Service of the Department of Agriculture. This study is contained in Miscellaneous Publication No. 390, entitled "Forest Resources of South Georgia." It is issued by the Forest Service, U. S. Department of Agriculture, Washington, D. C.

The survey provides a field of inventory of all forest land and of the present supply of timber, pulpwood and other forest products thereon. The percentage of all pulping species, from 5 to 13 inches in diameter, is 56.7. In reference to pulpwood the publication states that, "A steady market for pulpwood should justify more intensive management, whereby thinnings and improvement cuttings and salvage of waste might be made profitable."

Economic Losses due to the Activities of Microorganisms*

By J. R. Sanborn[1] and Raphael A. Gillotte[2]

Abstract

The pernicious effects of microorganisms in mill systems which result in slime, offensive odors, decreased production, inferior quality, and increased maintenance costs can be eliminated and controlled most efficiently through a program of prevention. Curative measures are costly and must be repeatedly employed as emergencies arise, unless suitable preventive precautions are taken.

Elimination and control of slime is a basic precaution in avoiding troubles due to microorganisms. Thorough washups, sterilization of cleaned surfaces and equipment, and the use of water supplies that are bacteriologically satisfactory are general precautions that should be followed. Specific germicides should be employed at points in the system that are most favorable or conducive to the development and activities of microorganisms. The main objective is to eliminate or avoid microbiological development at the source, thereby facilitating the problem of control further along in the process where proper control is more difficult and more costly.

Many mills are in a position to show in dollars and cents that microbiological control, consistently maintained, results in significant savings. Many of these mills report increase in business due in a certain measure to better quality paper and paperboard production which results from the proper control of objectionable microorganisms. Studies reveal the general nature of the causal organisms, something of their origin relative to water supplies and raw materials, and economic significance. Methods of effective control are in process of development. It may be most timely to summarize and discuss some of the results secured through these investigations. Data are available from over 100 mills, covering various aspects of microbiological studies.

Value of Microbiological Studies and Procedures

Nearly all of the activities of microorganisms in pulp systems mean economic waste. While several mills have never investigated the amounts of these losses and therefore are not prepared to compare yields, production, and costs with and without adequate microbiological control, experience shows that many more mills, long since convinced that they cannot afford to sustain such losses, have for years been successfully preventing microbiological development. In a few cases mills have attained a control that practically eliminates microorganisms from pulp systems.

The method of procedure employed in the study of microbiological problems of mills includes: (1) the making of bacteriological counts at selected points throughout the system, (2) determination of types of microorganisms present and their significance, and (3) suggestions as to specific remedies.

Bacteriological counts are, in themselves, of little importance. As estimates, they have practical value in indicating points in a mill system where growth is taking place, where control measures should be applied, and in measuring the effectiveness of germicidal or inhibitory treatments. It is sometimes even more important to determine types of microorganisms because bacteriological plating alone, using media that are standard for making counts of water or milk, for example, may not always indicate the nature of the real causal agent and the reason for its presence nor give an accurate idea as to its distribution. Special media for specific groups of organisms are therefore employed, aided by microscopic examinations.

In Tables I to IV, data are presented from microbiological studies made at 4 mills. A complete study includes analyses of thirty or more samples. Table I draws a comparison of bacteriological examinations carried out at a newsprint mill during and imme-

TABLE I.—COMPARATIVE ANALYSES MADE BEFORE AND AFTER MICROBIOLOGICAL CONTROL

Newsprint Mill A
Medium: Standard nutrient agar — Incubation: 32° C. for 48 hours

Samples	Bacterial Counts per cc. Samples taken Oct. 23 during slime development	Samples taken Oct. 29 following control measures
Raw water	2,150	.....
Chlorinated water	13	0
Decker white water at grinders	600	0
Stock from bull screens	600	8
Stock at deckers		
Grade A	320,000	1,500
Grade B	101,300	4,000
White water to beaters	300,000	31,000
Stock at beaters	310,000	38,200
Jordan discharge	710,000	64,000
Paper machine white water	610,000	34,000
	790,000	59,500
Machine white water chest	2,250,000	62,000

TABLE II.—COMPARATIVE ANALYSES MADE BEFORE AND AFTER MICROBIOLOGICAL CONTROL

Newsprint Mill B
Medium: Standard nutrient agar — Incubation: 37° C. for 48 hours

Samples	Bacterial Counts per cc. Samples taken Oct. 4 during slime development	Samples taken Dec. 7 following control measures
Raw water	525	500
Chlorinated water	5	13
Groundwood white water	2,330,000	330,000
Groundwood stock out of bull screens	2,200,000	280,000
Groundwood regular decker stock white water	3,435,000	260,000
Groundwood fine decker stock white water	2,510,000	260,000
Sulphite acceptance stock from screens	2,600	18
Sulphite decker stock (thin)	1,000	96
Paper machine white water	2,645,000	89,500
	90,000	30,600
	400,000	375,000
	154,600	.....
	320,000	.....
	105,000	84,500
	102,625	.....
	1,285,000	.....
	36,700	.....
	17,900	.....
	3,140,000	.....
	2,925,000	730,000
	2,560,000	134,560
	1,355,000	805,000

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diately following serious difficulty due to excessive development of microorganisms causing slime and discoloration of stock. These findings were helpful in locating the chief source of slime accumulations—a machine white water chest. The causal agents were then determined and suitable control measures applied. The results in the second column show the decreases in counts that were secured following these procedures.

The slime condition in Mill B was more general and of a different type from that of Mill A. Substantial decreases in counts were secured following the application of suitable control procedures. In reporting the machine white water counts, an attempt has been made to list the results according to grades so that, in a few instances at least, counts on similar furnishes may be compared.

Table III gives a few counts from a mill that experienced general trouble from the growth of various slime-forming bacteria, and the results obtained following application of specific germicides.

The results presented in these three tables show that through systematic analyses of samples of process water and stock taken at focal points in a mill system, sources of microbiological growth and decompositions may be revealed and the effectiveness of control measures satisfactorily indicated. Studies such as these are of practical benefit in prompt determination and control of causal agents responsible for many troublesome conditions.

Several mills manufacturing high-grade paper and paperboard for the packaging of perishable foods have secured substantial reductions in bacteriological counts throughout pulp systems. They maintain low counts and periodically carry out bacteriological tests of water supplies and stock in order to determine if development of microbiological growth at all focal points is being prevented. Some of these mills have achieved a control that practically eliminates microorganisms from the mill systems; others are making considerable progress toward this goal. The improvements made by Mill D are indicated in Table IV.

Types of Microorganisms that Cause Losses

In addition to the making of total counts for the purpose of detecting the points at which microbiological growth in mill systems is taking place, it is desirable to know the identity of the organisms responsible for slime growths and decompositions. This work is accomplished with the aid of special media and microscopic examinations. In order to secure more comprehensive knowledge of the types of microorganisms found in pulp, paper, and paperboard

TABLE III.—COMPARATIVE ANALYSES MADE BEFORE AND AFTER MICROBIOLOGICAL CONTROL

Mill C
Medium: Standard nutrient agar — Incubation: 37° C. for 24and 48 hours

	Bacterial counts per cc.		
	Samples taken before control procedures	Samples taken following control procedures	
Samples	24-hour count	24-hour count	48-hour count
Raw water	12,000	.....	.....
Chlorinated water	1	.....	.....
Chemical pulp used at beaters.	less than 100 colonies per gram	.....	.....
White water to beaters	2,800,000	1,330	24,200
Stock at beater chest or storage chest	1,900,000	19,500	430,000
Stock at machine chest	5,720,000	No growth	670
Stock at head box	3,850,000	2	1,100
Wire pit white water	4,000,000	No growth	480
Broke from repulper	60,000	1,680	140,000

TABLE IV.—COMPARATIVE BACTERIOLOGICAL ANALYSES MADE BEFORE AND AFTER MICROBIOLOGICAL CONTROL

Mill D.—Food container board consisting partly of groundwood
Medium: Standard nutrient agar — Incubation: 37° C. for 48 hours

	Bacterial counts per cc.	
Type of Sample	Samples taken June 8, before control procedures	Samples taken Nov. 11, following control procedures
Raw water	1,500	...
Chlorinated water	17	...
Stock at headbox of paperboard machine	45,000	320
Vat Stock		
no. 1	3,600	390
no. 2	9,300	180
no. 3	19,500	490
no. 4	23,500	150
no. 5	33,750	170
no. 6	8,650	41
no. 7	8,450	46
Average counts per gram of paperboard off machine	460	150

mills, additional tests necessary for identification of species, have been employed in this work. Detailed studies of types reveal a diversified microbiological flora.

Due to incomplete knowledge as to proper classification of certain groups of microorganisms that comprise the mill flora, it is impossible in some cases to give these forms precise designations. Speaking generally, the organisms most frequently encountered may be grouped as follows:

(1) Coliform types belonging to the general *Escherichia* and *Aerobacter*. Intermediate types also occur.
(2) Nonspore-bearing bacterial species belonging to the genera *Micrococcus, Pseudomonas,* and to the poorly defined genera *Achromobacter, Flavobacterium, Alcaligenes,* and *Cellulomonas.*
(3) Spore-bearing bacterial species such as *Bacillus subtilis* and its slime-forming relative *Bacillus peptogenes; Bacillus mesentericus* (syn. *Bacillus pumilus*), *Bacillus megatherium, Bacillus cereus, Bacillus mycoides,* and various thermophilic and anaerobic types.
(4) Filamentous mold-like bacteria belonging to the genus *Actinomyces,* and special groups such as the iron bacteria that sometimes develop in water supplies.
(5) Pseudo yeasts and yeast-like fungi—*Torula, Oidium, Monilia.*
(6) Filamentous fungi of the mold type including *Penicillium, Aspergillus, Citromyces, Fusarium, Cephalosporium, Botrytis, Trichoderma, Alternaria, Cladosporium,* and *Spicaria.*

Many other fungus types occur more or less frequently such as *Acrostalagmus, Chaetomium, Trichothecium, Thamnidium, Gliocladium, Mucor, Torulopsis, Clonostachys, Sporotrichum* and *Stachybotrys.*

Other groups of organisms such as certain microscopic plants known as algae, developing periodically in some raw water supplies, cause trouble only spasmodically, usually infrequently, and are not ordinarily considered as members of a typical mill flora. The blue-green algae present at times in fresh water may produce objectionable discolorations of pulp. Odor problems are occasionally traced to algae.

The various groups of organisms enumerated above contain species that produce slimes; others that destroy cellulose fiber, mildew stock, discolor pulp and paper products, rot felts, aggravate corrosion difficulties, or form objectionable odors in pulp systems.

The manifestations and reactions of organisms are often unusual and appear to have a significance which merits an intensive study of the microbiology of pulp, paper, and paperboard mills. Certain organisms reveal under mill conditions extraordinary aggressiveness, persistence, and adaptability. For example, the running of process water over a wire or the dripping of white water containing certain groups of slime-forming organisms through wires or screens, sometimes produces segments or elongated rubbery filaments which are often unusual or exaggerated forms of microbiological growth. The excellent breeding places supplied by many types of surfaces favorable for growth attachment provide conditions

that frequently result in variable growth characteristics represented by sheets of slime; stringy, ropy growths; gelatinous globules, or horny excrescences. The prevalence of such conditions in mill systems requires diversity in methods of control. These matters are complex and deserve more study than has been given to them. As more effective preventive procedures are developed, it is possible to establish better slime control. However, if these procedures are not adopted, if vigilance is relaxed, or if adequate investigation of the many conditions that promote slime development is not made, these problems will continue to arise.

Slimes

If the slime and stock discoloration problems, selected at random, were studied along with the microorganisms causing these conditions, it would be found that slime-forming coliform-like bacteria, slimy varieties of the *Bacillus subtilis-Bacillus mesentericus* groups, the yeast-like organisms *Oidium* and *Monilia*, and certain fungus genera such as *Aspergillus, Penicillium,* or *Trichoderma* occur frequently. In a number of instances equally serious difficulties may be caused by other groups of microorganisms including *Cladosporium, Chaetomium, Botrytis, Cephalosporium,* or *Clonostachys,* that are encountered only occasionally. Fortunately the control measures that are effective against the types mentioned above, are proving helpful in eliminating organisms that are less common and not so well known. The slime-producing microorganisms tend, however, to be restricted to clearly defined groups for which fairly uniform control procedures are already being developed.

The types of slimes that develop under varied conditions of microbiological growth produced by a variety of slime-forming species are illustrated by the terms used by industry as descriptive of these slimes. These troubles are not confined to this industry. The sugar refinery industry realized over fifty years ago that bacteriological growth was the cause of its slime difficulties. Even today, refineries are sometimes forced to close down because pipe lines become completely filled with slime. The term "Froschlaich" (frog's eggs or frog's spawn) has been used to describe these accumulations. In some cases, slime-forming organisms develop in the product itself, as in the formation of "rope" in milk, bread, beer, and certain pharmaceutical products. The pickling industry has a slime problem in a "slippery" condition of pickles; sauerkraut manufacturers refer to "slimy kraut"; tanning solutions develop a "liver slime." The maple sugar industry has a microbiological problem in "buddy and slimy sap." Velvet fabrics plants are troubled by a slime condition which is described as "pile crushing" The pulp and papermaker speaks of "tapioca slimes," "horny granules," "rubbery and leathery slimes," "slugs," "mucous," and "earthy deposits." It is true that the growth characteristics of the various groups of slime-forming organisms, influenced, as stated above, by conditions of development, impart properties to slime masses which an experienced observer may recognize as due to one or more specific groups of organisms. The microbiologist isolates and cultivates these species on selected media which bring out slimy types and then proceeds to identify the organisms present.

Pulp and paper mill slimes have been defined as accumulated microbiological growths, composed heterogeneously of microorganisms, products of growth, fiber and inorganic debris *(1)*. Under certain conditions mill slimes are found quite free of fiber and not combined with considerable amounts of inorganic debris. Examination of this material brings out at once the synthetic or constructive functions of slime-forming organisms which enable them to utilize pulp constituents as food and to produce gums and gelatinous forms of cellulose from these nutrients. Microorganisms are able to build up gums or slimes having various physico-chemical properties. Biochemical and microbiological investigations have shown certain differences in these gums and more or less specific names have been given to them, such as dextrans, levulans, galactans, arabins, and cellulans *(2)*.

It has been shown by Harrison, Tarr, and Hibbert *(3)* that the *Bacillus subtilis* and *Bacillus mesentericus* groups are able to form a gum known as levan. Certain yeast-like fungi produce in pulp mills rubbery or leathery slimes of an unusually resistant nature. These are probably gelatinous forms of cellulose. Some of the properties of these rubbery or leathery slimes have previously been discussed *(4)* particularly the sheet-forming characteristics of the cellulose slime types. Some of the nonspore-bearing bacteria yield gel-like, viscous slimes that are closely related to the hemicelluloses. Sometimes these slime types are found on chests, boxes, or screens quite free from admixtures with other materials such as fillers, coatings, scale, foam, old paint, or stock residues. In many cases the presence of one or more of these materials in a typical mill slime, tends to obscure its characteristic properties. Bacterial slimes may take the form of gelatinous films, strands or viscous masses characteristic of slimy varieties of *Escherichia-Aerobacter* or *Achromobacter groups*. The spore-bearing slime producers often give rise either to stringy, fibrous strands or to soft, doughy membranes.

The yeast-like fungi produce sheets, membranes or ropy strands which may be leathery, rubbery, doughy or pasty.

The slimes formed by filamentous fungi vary widely from small gel-like masses or hard, horny particles to matted, doughy or granular masses which are sometimes dark colored or sooty black. The various groups of slime-forming microorganisms and the specific slimes produced differ as to degrees of resistance toward physical and chemical agents. Differences among slime-producing types should be carefully considered in recommending or planning a control program which is, in all cases, specific for the individual problems and local conditions found at each mill.

Emphasis has been laid in this report upon slime problems because proper eradication and control of slime is usually of fundamental importance in the prevention of other troubles caused by microorganisms. This is true particularly of discoloration and odor difficulties. Attention should be called, however, to problems that are more or less closely related to slime troubles for which specific remedies should be applied. The use of stock that has been exposed to the action of fungi, producing a condition known as "mildew," rotting of felts, discoloration of fresh water due to the presence of algae, some corrosion difficulties, utilization of pulp wood showing deterioration or rotting, are a few of the problems

which should be approached from the standpoint of slime control in conjunction with special procedures that are directed against specific causal microorganisms. For example, in cases of rotting felts, slime-forming bacteria are usually present in association with the bacterial or fungus groups which decompose the wool fibers. There seems to be an intimate association between these two groups. Felt preservation procedures should include the control of slime-forming organisms (which undoubtedly contribute to the rotting process even if they are not actual causal agents) and elimination of the specific types that are associated with felt deterioration. The latter group includes certain nonspore-bearing bacteria that are placed tentatively in the genus *Alcaligenes,* filamentous mold-like bacteria belonging to the genus *Actinomyces,* and the fungus genera *Cladosporium, Verticillium,* and *Spicaria.*

Nearly all mills utilize germicidal treatments. They all agree that fresh water, as used, should be in a satisfactory condition. Many mills have discovered that the maintenance of an excess of germicide in fresh water enables them to use this water as a bacteria-killing solution which is unusually effective in washups and in sterilizing cleaned surfaces of equipment and piping, thereby preventing specific slime-forming organisms from immediately redeveloping on these surfaces. Many news and groundwood mills carry chlorine residuals varying between 0.5 and 2.0 p.p.m., depending upon local conditions and practicability. The bacteria-killing effect of chlorinated fresh water can be used to good advantage in preparing starch solutions, in sterilizing felts, and on showers. In other words, the beneficial effects of this bacteria-killing solution should be utilized wherever it is practical and feasible to do so. Mills make rather common use of this procedure. Newsprint mills, in particular, have been unusually successful in its applications.

Due to the readily fermentable character of groundwood, newsprint and groundwood pulp mills face microbiological problems that are quite different from mills that do not use or handle appreciable quantities of this pulp. The microbiological flora of groundwood is fairly specific and uniform. There are, however, considerable variations in the seriousness of the conditions produced and in the forms which these troubles may assume. Nevertheless, rather uniform control procedures have been developed by newsprint mills involving the use of heavily chlorinated fresh water. Due to the diversification and aggressiveness of the types of organisms that develop in these mills, it is frequently necessary to employ copper sulphate at one or more focal points of growth, such as white water chests, in addition to the straight chlorination or chloramine treatment of fresh water. Best control is secured when returned white water receives direct applications of germicides. Chloramines or pentachlorophenates are perhaps most generally utilized in white water systems, usually supplemented by small additions of copper sulphate.

Mills that utilize mainly bleached and unbleached chemical pulps have microbiological problems that are essentially different from those of the former group, but which bear directly upon efficient operation and high quality production. While these mills quite generally utilize satisfactory supplies of fresh water, they do not, as a group, carry as high a chlorine residual in this water as the former group nor do they use this supply so extensively as a bacteria-killing solution. These mills do, however, emphasize the use of chemical treatments in mill systems. The growth of microorganisms in returned white water is generally controlled and stock systems frequently receive applications of specific germicides. Calender water, size press solutions, starch solutions and broke stock are handled and treated in ways which prevent the development of microorganisms. Cleaning and sterilizing procedures are applied regularly and systematically to size press and calender water boxes, piping, save-alls, and all other parts of the process that are conducive to microbiological growth.

Mills that bleach their own stock and have satisfactory fresh water supplies are in a particularly favorable position to establish good control procedures. On the other hand, mills that obtain a considerable portion of the stock used from other mills, converting plants or dealers are usually forced to contend with microbiological growths or miscellaneous contaminations that may be introduced with these materials. This situation, aggravated as it is by present economic conditions, has led to the development of many different methods for the elimination of undesirable microorganisms in stock. These procedures provide considerable flexibility in their applications. It is sometimes necessary to take extraordinary precautions to prevent the development and spread of mildew, to apply germicidal materials at beaters or beater chests, or to use specific control measures elsewhere in the system. The pulp going on machines frequently receives treatment and, in special cases, fungicides or chemical preservatives are applied in calender water boxes. Many mills use starch fairly regularly. This product is fermentable and special precautions should be employed in its preparation and use. It is recommended that mills purchase chlorinated starch, make starch solutions with water containing a germicide, and cook or hold these solutions at temperatures in the vicinity of 190 deg. F. When starch is used at fan pump or elsewhere in the system and when paper or paperboard is sized with starch, white water and broke containing this fermentable material are rendered particularly susceptible to bacterial growth. Specific germicides should be selected and applied with adequate knowledge as to the nature, origin, growth characteristics, and resistance of the causal organisms, keeping in mind that, following eradication, preventive measures should be established.

The pernicious effects of microorganisms in mill systems which result in slime, offensive odors, decreased production, inferior quality, and increased maintenance costs can be eliminated and controlled most efficiently through a program of prevention. Curative measures are costly and must be repeatedly employed as emergencies arise, unless suitable preventive precautions are taken.

Mill studies, involving the making of bacteriological counts at focal points in a system, determination of types of predominating microorganisms, and identification of causal agents are beneficial in revealing where undesirable microbiological activity is taking place, the origin of these organisms, their characteristics, resistance to physical and chemical factors, the type of remedy that should be employed and the proper points of application.

Control measures are both general and specific. Properly utilized, they result in effectively inhibiting

or eliminating microbiological development which, in turn, makes possible significant economic savings.

The microbiological flora of mills is diversified and variable. Preventive and remedial procedures should be selected and applied with adequate knowl- the types of microorganisms involved, the treatment that is likely to be most effective, and the influence of local conditions upon the entire problem.

Elimination and control of slime is a basic precaution in avoiding troubles due to microorganisms. Thorough washups, sterilization of cleaned surfaces and equipment, and the use of water supplies that are bacteriologically satisfactory are general precautions that should be followed. Specific germicides should be employed at points in the system that are most favorable or conducive to the development and activities of microorganisms. The main objective is to eliminate or avoid microbiological development at the source, thereby facilitating the problem of control further along in the process where proper control is more difficult and more costly.

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Heat Transfer Coefficients in Natural Circulation Evaporators*

By L. C. Jenness[1] and J. G. L. Caulfield[2]

Abstract

The evaporation of water, together with sucrose solutions and caustic soda solutions of a range of concentration of 4.4 to 41.6% was studied in two small-scale natural circulation evaporators with different types of submerged heating coils.

The over-all coefficient was found to vary inversely with power functions of temperature difference, and of the groups $\left(\frac{\rho}{\mu}\right)$ *and* $\left(\frac{c\mu}{k}\right)$

The general equation followed was

$$U\,\Delta t^{m} = \frac{a}{\left(\frac{\rho}{\mu}\right)^{n}\left(\frac{c\mu}{k}\right)^{p}}$$

The exponential value of Δt *was constant in all cases, while those of the groups were found to be constant for two solutions in two different machines provided the type of liquid circulation remained the same.*

The constant a *varied between different types of heating surface. Materially larger exponents of the groups and values of the constant* a *were found when turbulent flow was believed to exist.*

Any approach to an understanding of the many factors influencing the value of the over-all coefficient of heat transfer in evaporation has always been difficult. In many other types of heat transfer apparatus separation of the over-all coefficient into its constituent individual film coefficients has led to a reasonably clear conception of the effects of the many variables involved, and has made possible satisfactory estimation of the over-all coefficient for given operating conditions. Such treatment has not been possible in the important case of the natural circulation evaporator, where fluid velocity and path of flow are not only uncertain but are also subject to wide variation where different arrangements of heating surface exist. In such evaporators, circumstances of operation such as boiling temperature greatly influence the value of the controlling fluid film resistance, due to the effect of temperature upon the physical properties of the solution being evaporated. Such properties are, in addition, dependent upon the concentration of the solution. Further complication is introduced by the fact that many of the variables involved are interdependent. Thus an increase in concentration will produce an increase in viscosity, which would lead to a lowered coefficient. On the other hand, the increase in boiling point rise brought about by the greater concentration would tend to offset this effect by lowering the viscosity. Further, the changed density, specific heat and thermal conductivity might be expected to alter the liquid film coefficient.

Any correlation of all possible variables thus presents difficulties that are probably insurmountable. However, for a given type of evaporator body, a given solution, and a given range of operating conditions, some few of the many variables involved might be expected to be of controlling importance, with the others playing a minor part. In such a case some empirical but useful correlation between heat transfer coefficient and the controlling variables would be possible. Many such correlations have appeared in the literature *(1, 2, 3, 4, 5, 6)* involving a number of variables among which viscosity appears to be the most important. The writers have found that a satisfactory correlation exists between over-all coefficient and the variables viscosity, density, thermal conductivity, specific heat, and temperature difference for two solutions and for water in two types of small-scale evaporator bodies. The solutions employed were sucrose varying in concentration from 4.4 to 40.4% and sodium hydroxide varying from 11.7 to 36.3%. It was possible to arrange these variables in groups, one of which is the familiar Prandtl group.

Evaporator Bodies Used

Two types of evaporator bodies were employed, a

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triple effect shown in Fig. 1, and a single effect shown in Fig. 2. Both of these pieces of equipment have been in use in class instruction at the University of Maine for several years, and some of the data here presented was accumulated during the course of class instruction. Each of the effects shown in Fig. 1 was fitted with a close cylindrical coil of 1-inch copper tubing presenting 4.06 square feet of outside surface and so placed in the body that the course of circulation, as observed when the bodies were partially dismantled, approximated that of a short vertical tube evaporator with central downtake. The single effect shown in Fig. 2 had as a heating element 0.75-inch iron pipe arranged in a single horizontal coil, designed to promote circulation similar to that of a horizontal tube evaporator with steam inside the tubes. The heating surface, based on outside pipe area, was 2.19 square feet. Both evaporators were capable of being run under approximately one-third of an atmosphere vacuum by means of a 10-foot barometric leg leading from the condenser. Due to the stronger construction of the single effect its operation was possible with 40-pound gage steam in the heating coil and the maximum vacuum in the vapor space. The triple effect, being of lighter construction, was not allowed to carry over 10 pounds gage pressure in the heating element of the first effect, with a 10-foot water leg on the condenser and last effect. The maximum terminal temperature difference was thus 46 deg. F. in the case of the triple effect and 92 deg. F. in the case of the single effect. The evaporative capacity of the triple effect, handling water, was approximately 100 pounds per hour, that of the single effect about 60 pounds per hour. Radiation did not exceed 5% of input in the case of the single effect due to adequate insulation of the bodies and connecting piping.

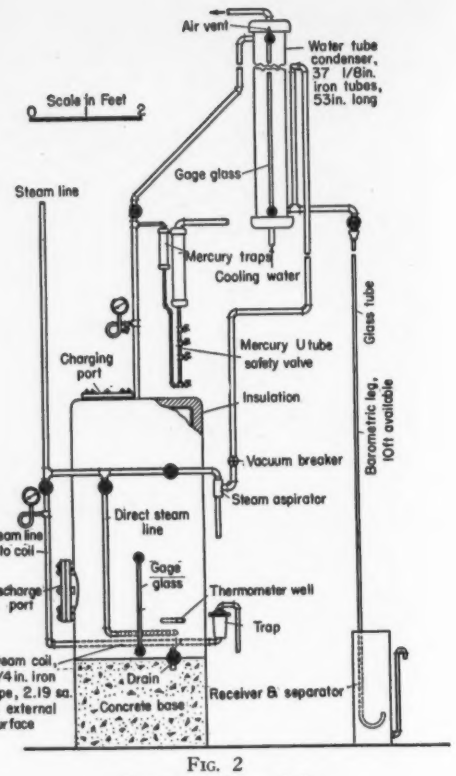

FIG. 2
Evaporator—Steam Still

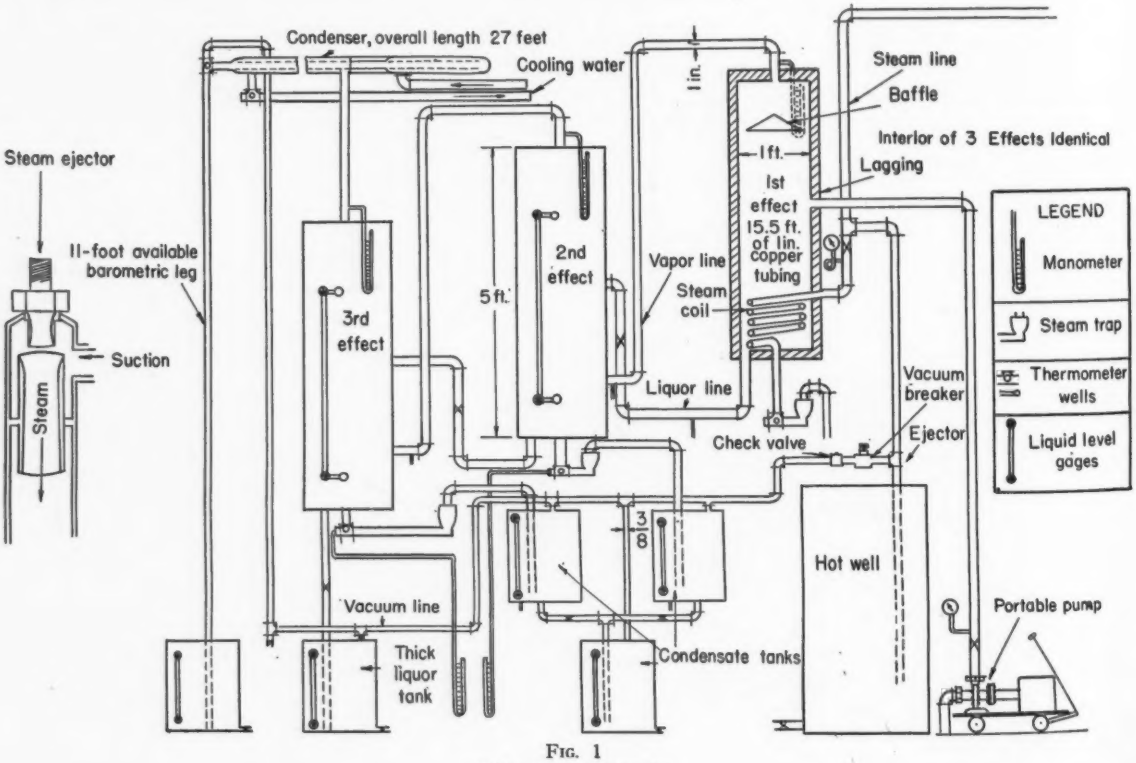

FIG. 1
Triple Effect Evaporator

Experimental Procedure

Procedure varied between the multiple and single effects due to differences in construction.

Triple Effect

In the runs in which the material being evaporated was water, all bodies were first filled to the same level, the evaporator put under vacuum and steam supplied to the heating element of the first effect. Feed was started as soon as boiling took place in the first effect. When subsequent effects reached their boiling points, feed was allowed to flow from the first effect to the second and from the second to the third by adjustment of the valves in the liquor lines connecting these effects. Constant levels were maintained in all bodies through the period of the run.

When steady state of operation had been reached, simultaneous readings were taken, at short intervals of time, of steam pressure in the heating element of the first effect, pressure in the vapor space of each body and temperature of feed. These readings were averaged for each effect. Condensates from each of the three coils and from the surface condenser were weighed for the period of the run and over-all coefficients based upon input to each heating element calculated. Input was preferred to output as a basis of computation because of variations in thermal efficiency among the three bodies, and because of the more direct and certain method of measurement.

When sucrose solutions were handled the same general method was followed, except that before the run each body was charged with a sugar solution of the concentration which was expected to be produced in that body at steady state. The time spent in coming to equilibrium conditions was thus materially decreased. In addition, thick liquor was continuously removed from the third effect, and each body was sampled at frequent intervals for the determination of sugar concentration. The boiling temperature in each body, as determined by the pressure in that body, was corrected for boiling point rise, according to the data of *(7)*. Sucrose concentrations were determined by density, employing the Westphal balance and the data of *(8)*.

Single Effect

No feed was supplied to the single effect evaporator which had a capacity of 400 or more pounds of solution, so that average concentration over the period of the run could be used. Otherwise the same general procedure as for multiple effect was employed. Concentration of sodium hydroxide, handled only in the single effect, was determined by density measurements using the Westphal balance and the data of *(9)*. Data for boiling point rise of sodium hydroxide was also due to *(9)*. Runs extended over at least an hour in every case after steady state had been reached, and in most cases for a longer period.

Discussion of Data

The experimental data obtained will be found in Tables I, II, III, and IV, including the evaporation of water and sucrose solutions in the triple effect

TABLE I.—WATER, TRIPLE EFFECT

Run	Steam Condensed lb./hr.	Steam Temp. deg. F.	Boiling Temp. deg. F.	Δt deg. F.	Viscosity, μ' centipoises	Over-all Coeff., U B.t.u./hr./ sq. ft./deg. F.	Log Viscosity	Log Over-all Coeff.
1	44.6	236.5	223.8	12.7	.265	832	9.423-10	2.920
2	40.3	238.5	224.3	14.2	.265	675	9.423-10	2.830
3	40.1	237.9	223.8	14.1	.265	679	9.423-10	2.831
4	38.7	236.7	223.4	13.3	.265	747	9.423-10	2.874
5	45.9	237.8	222.7	15.1	.266	713	9.424-10	2.854
6	34.9	236.0	222.0	14.0	.267	590	9.427-10	2.771
7	38.7	233.8	221.1	12.7	.269	719	9.431-10	2.856
8	25.5	221.1	212.7	8.4	.284	634	9.453-10	2.802
9	37.5	232.3	219.1	13.2	.271	670	9.434-10	2.826
10	24.7	223.4	211.6	11.8	.284	543	9.453-10	2.735
11	28.4	224.3	212.3	12.0	.284	564	9.453-10	2.751
12	26.0	211.2	199.4	11.8	.306	508	9.486-10	2.707
13	25.4	222.7	211.8	10.9	.284	552	9.453-10	2.742
14	27.8	223.8	211.2	12.6	.284	532	9.454-10	2.727
15	23.2	222.0	211.0	11.0	.284	502	9.454-10	2.701
16	24.9	219.1	209.2	9.9	.288	598	9.460-10	2.777
17	23.0	212.7	202.0	10.7	.301	515	9.479-10	2.712
18	21.5	211.6	199.7	11.9	.305	471	9.485-10	2.673
19	23.7	212.3	199.9	12.4	.305	459	9.485-10	2.661
20	20.2	211.0	200.0	11.0	.305	400	9.485-10	2.602
21	22.2	209.2	199.4	9.8	.305	540	9.485-10	2.732
22	25.0	211.8	199.4	12.4	.305	483	9.485-10	2.686
23	26.0	211.2	199.4	11.8	.306	508	9.486-10	2.707
24	22.7	212.0	199.2	12.8	.306	443	9.486-10	2.647

TABLE II.—SUCROSE, TRIPLE EFFECT

Run	Sucrose %	Steam Condensed lb./hr.	Steam Temp. deg. F.	Boiling Temp. deg. F.	Δt deg. F.	Viscosity, μ' centi-poises	Over-all Coeff., U B.t.u./hr./ sq. ft./deg. F.	Log Viscosity	Log Over-all Coeff.
1	4.4	27.3	231.0	220.3	10.7	0.302	605	9.480-10	2.782
2	7.3	27.0	234.0	225.5	8.5	0.313	580	9.495-10	2.763
3	7.4	26.0	236.4	224.5	11.9	0.316	540	9.500-10	2.732
4	7.9	26.5	236.4	224.7	11.7	0.320	525	9.505-10	2.720
5	9.4	27.3	236.3	224.0	12.3	0.331	548	9.520-10	2.738
6	9.4	25.5	235.2	223.5	11.7	0.331	542	9.520-10	2.734
7	10.5	24.2	233.7	222.7	11.0	0.339	510	9.530-10	2.707
8	12.3	16.5	223.2	213.8	9.4	0.371	418	9.570-10	2.621
9	13.0	18.5	225.5	214.7	10.8	0.381	485	9.580-10	2.685
10	14.2	19.3	224.4	214.5	9.9	0.389	445	9.590-10	2.639
11	15.2	19.3	223.8	213.9	9.9	0.402	462	9.605-10	2.665
12	16.0	19.2	220.3	212.1	8.2	0.407	544	9.610-10	2.735
13	16.5	18.6	224.3	214.6	9.7	0.408	447	9.610-10	2.650
14	18.4	16.5	224.0	215.0	9.0	0.442	432	9.645-10	2.636
15	25.9	15.6	222.4	213.4	9.0	0.549	395	9.740-10	2.597
16	29.3	15.1	211.5	201.0	10.5	0.692	346	9.840-10	2.539
17	32.0	16.3	213.7	201.8	11.9	0.758	331	9.880-10	2.520
18	32.5	16.2	214.0	201.3	12.7	0.777	325	9.890-10	2.512
19	35.1	15.2	214.3	201.8	12.5	0.852	302	9.930-10	2.480
20	37.2	14.8	212.3	201.5	10.8	0.933	305	9.970-10	2.484
21	40.4	14.5	214.3	202.0	12.3	1.071	263	0.030	2.420

evaporator and sucrose and sodium hydroxide solutions in the single effect evaporator. Of the total data accumulated, 5% was rejected as inconsistent with the general trend. In order to cover the temperature range involved it was necessary to extrapolate existing viscosity data *(7, 9)*. This was done by plotting the logarithm of viscosity against the logarithm of temperature *(1)* and extending the straight lines so obtained, as shown in Fig. 4, 5. Viscosities were taken at the boiling point as were all other physical properties except specific heats which were at 20 deg. C.

Since some correlation between viscosity and over-all coefficient might be expected to exist, these quantities were first plotted against each other as logarithm of over-all coefficient *versus* logarithm of viscosity. Figure 3 shows that reasonably satisfactory

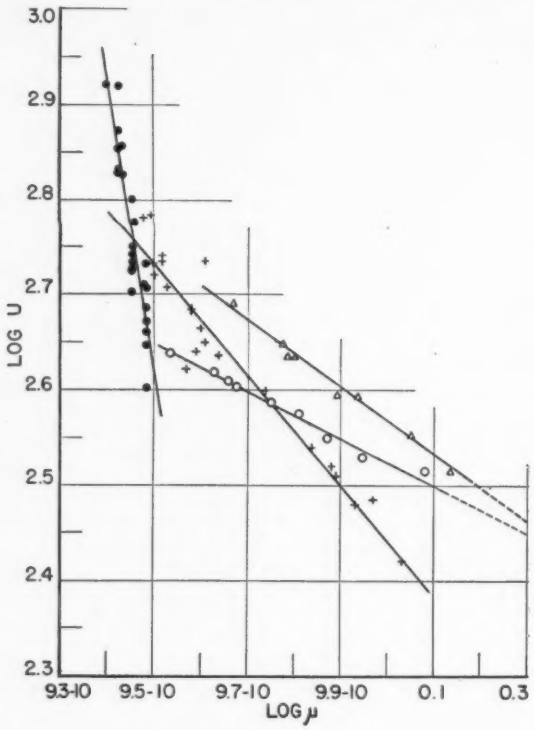

FIG. 3

Log Over-all Coefficient (Ehu) vs. Log Viscosity (Cp)
△ Caustic (Single Effect). ○ Sucrose (Single Effect).
● Water (Triple Effect). + Sucrose (Triple Effect).

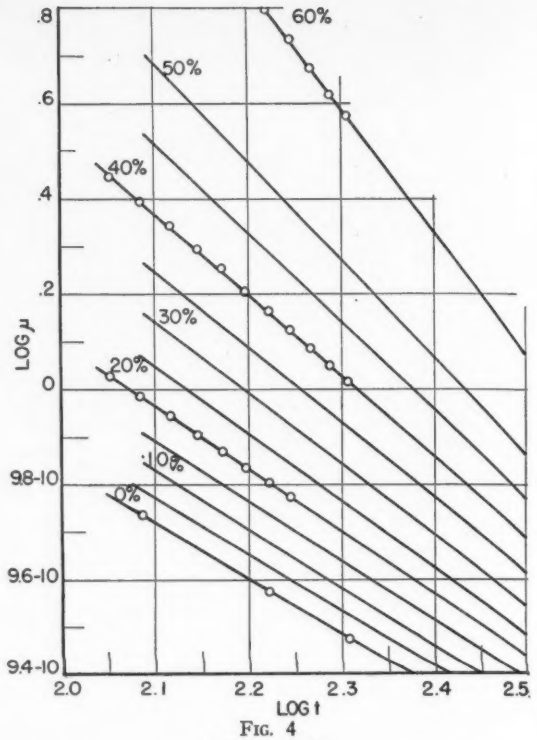

FIG. 4

Sucrose Solutions
Log Viscosity (Cp) vs. Log Temperature (deg. F.)

straight lines are obtained for all the solutions studied, but the slopes of the lines and hence the rates of change of coefficient with viscosity vary widely. This is true, not only between different evaporator bodies where it could be explained by arrangement of heating surface, but for different solutions in the same body. Variables other than viscosity were clearly influencing the value of the coefficient. A fair linear relationship was obtained between logarithm of coefficient and logarithm of density. That the coefficient should give approximately straight lines as plotted in both cases when only one variable was considered might be explained by the fact that a similar linear logarithmic relationship can be shown to exist between viscosity and density for the solutions studied.

To bring about coincidence of the plotted lines for different solutions in the same body the influence of the variables specific heat, thermal conductivity

TABLE III.—SUCROSE, SINGLE EFFECT

Run	Sucrose %	Steam Condensed lb./hr.	Steam Temp. deg. F.	Boiling Temp. deg. F.	Δt deg. F.	Viscosity, μ' centi-poises	Over-all Coeff., U B.t.u./hr./ sq. ft./deg. F.	Log Viscosity	Log Over-all Coeff.
1	6.0	65.6	266.8	202.0	64.8	0.343	435	9.536-10	2.639
2	10.7	78.5	266.8	186.0	80.8	0.422	413	9.626-10	2.618
3	15.8	66.7	266.8	197.0	69.8	0.453	407	9.656-10	2.610
4	19.6	57.1	266.8	206.0	60.8	0.477	401	9.678-10	2.603
5	25.3	55.1	266.8	206.0	60.8	0.562	386	9.750-10	2.587
6	29.6	49.0	266.8	211.0	55.8	0.642	373	9.807-10	2.573
7	33.2	48.1	266.8	209.0	57.8	0.742	354	9.870-10	2.549
8	37.1	45.9	266.8	209.0	57.8	0.878	338	9.943-10	2.529
9	41.6	51.2	266.8	200.0	66.8	1.108	327	0.044	2.515

TABLE IV.—CAUSTIC SODA, SINGLE EFFECT

Run	Conc. %	Steam Condensed lb./hr.	Steam Temp. deg. F.	Boiling Temp. deg. F.	Δt deg. F.	Viscosity, μ' centi-poises	Over-all Coeff., U B.t.u./hr./ sq. ft./deg. F.	Log Viscosity	Log Over-all Coeff.
1	11.7	63.5	280.6	225.9	54.7	0.468	489	9.670-10	2.690
2	16.9	51.8	280.6	229.7	50.9	0.612	422	9.788-10	2.626
3	16.7	73.5	292.4	221.2	71.2	0.632	431	9.800-10	2.635
4	18.3	75.8	292.4	221.	71.4	0.693	443	9.840-10	2.646
5	21.8	42.1	280.6	232.	45.2	0.776	393	9.890-10	2.593
6	30.5	42.5	292.4	247.1	44.7	0.967	391	9.985-10	2.593
7	35.2	37.5	299.7	256.2	43.5	1.122	358	0.050	2.554
8	36.3	41.1	292.4	240.1	52.3	1.358	327	0.133	2.515

and temperature difference was studied. Introduction of these additional properties made possible the setting up of the dimensionless Prandtl group, $\frac{c\mu}{k}$, and the ratio $\frac{\rho}{\mu}$. It was then found that when both of these ratios were raised to fractional powers and the logarithm of their product plotted against logarithm of the product of over-all coefficient and temperature difference, the latter to a fractional power, satisfactory correlation was obtained. Such a plot is shown in Fig. 6, constructed from the data of Tables V and VI. The exponents of the ratios and of the temperature difference were determined largely by trial and error, at the same time keeping the net value of the exponent of viscosity close to that indicated in the preliminary correlation of coefficient with that variable. The values for sucrose and for caustic in the single effect evaporator can be represented by a single straight line.

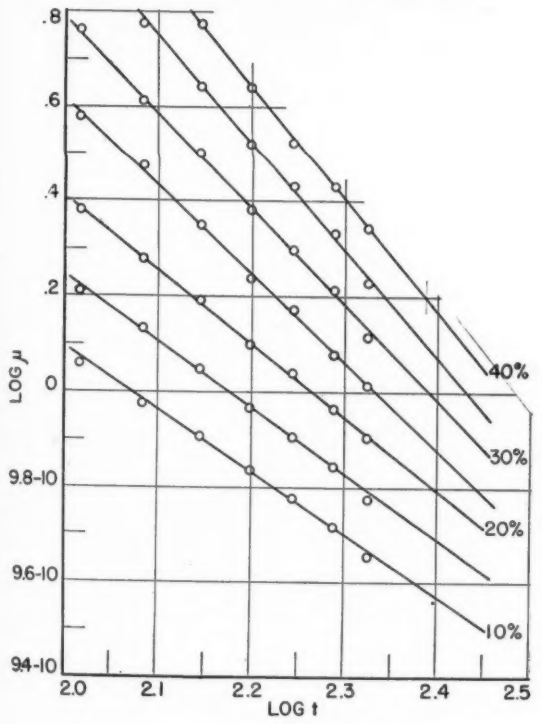

FIG. 5
Caustic Solutions
Log Viscosity (Cp) vs. Log Temperature (deg. F.)

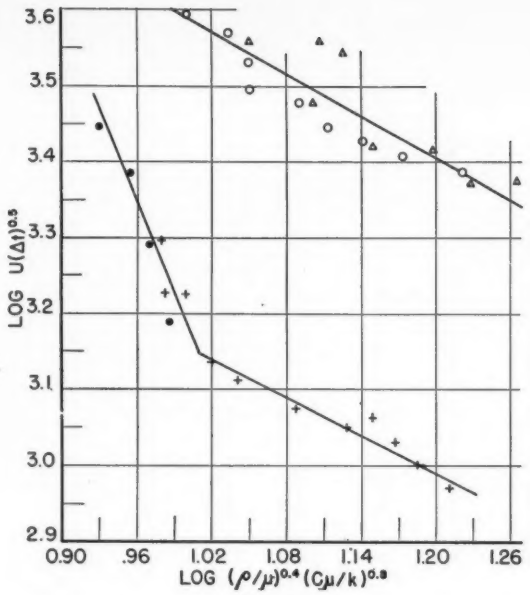

FIG. 6
Correlation of Over-all Coefficient with Variables Expressed in Ehu
● Water (Triple Effect). + Sucrose (Triple Effect).
△ Caustic (Single Effect). O Sucrose (Single Effect).

Data for sucrose in the triple effect gives a straight line which is parallel to that representing the same solution in the single effect, except in the cases of the most dilute sucrose solutions. Water gives another straight line of entirely different slope and intercept, and the points for the dilute sucrose fall on this line. That the intercepts of the lines obtained in the cases of sucrose in the two different machines are not the same is not surprising, since the arrangement of heating surface was so widely different. That the lines are parallel probably indicates the same influence of the other variables which govern the slope.

It is believed that the steep slope of the line showing water in the triple effect, as well as the fact that dilute sucrose solutions give values appearing on that line, can be explained by flow conditions. Approximate velocity measurements in the triple effect, based on the annular space between heating coil and body, indicated Reynolds numbers in excess of 4500 for water and dilute sucrose. Reynolds numbers well in the viscous range were obtained for more concentrated sucrose solutions. It was there-

TABLE V.—TRIPLE EFFECT EVAPORATOR (CORRELATION OF COEFFICIENTS)

Run	Log ρ (ehu)	Log μ (ehu)	Log c 20 deg.	Log k (ehu)	Log ρ/μ	Log cμ/k	Log (ρ/μ)^0.4 (cμ/k)^0.5	Log U Δt^0.5
WATER								
5	1.774	—.192	0.0	—.406	1.966	.204	0.930	3.444
9	1.775	—.182	0.0	—.406	1.957	.214	0.954	3.387
11	1.777	—.163	0.0	—.406	1.940	.243	0.970	3.291
18-24	1.778	—.130	0.0	—.406	1.908	.276	0.984	3.190
SUCROSE SOLUTIONS								
1	1.781	—.136	—.014	—.415	1.917	.265	0.979	3.297
2	1.786	—.121	—.029	—.424	1.907	.274	0.982	3.228
7	1.797	—.086	—.049	—.433	1.883	.307	0.999	3.227
10	1.799	—.026	—.053	—.442	1.825	.363	1.020	3.137
14	1.807	.029	—.071	—.453	1.778	.411	1.040	3.113
15	1.821	.124	—.089	—.474	1.697	.509	1.086	3.074
16	1.827	.224	—.103	—.488	1.603	.609	1.128	3.050
18	1.833	.274	—.111	—.494	1.559	.657	1.149	3.064
19	1.839	.314	—.119	—.501	1.525	.696	1.167	3.028
20	1.842	.354	—.124	—.506	1.488	.736	1.184	3.000
21	1.848	.414	—.138	—.519	1.434	.795	1.210	2.965

fore concluded that viscous flow existed at all times in the single effect, but that in the case of the triple effect turbulent flow would obtain for water or a dilute solution.

Evaluation of the equation of the lines shown in Fig. 6 give

1. Sucrose and caustic, single effect.

$$U\,\Delta t^{0.5} = \frac{26300}{\left(\frac{\rho}{\mu}\right)^{0.36}\left(\frac{c\mu}{k}\right)^{0.67}}$$

2. Sucrose, triple effect.

$$U\,\Delta t^{0.5} = \frac{10{,}000}{\left(\frac{\rho}{\mu}\right)^{0.36}\left(\frac{c\mu}{k}\right)^{0.67}}$$

3. Water, triple effect.

$$U\,\Delta t^{0.5} = \frac{1.78 \times 10^{7}}{\left(\frac{\rho}{\mu}\right)^{1.68}\left(\frac{c\mu}{k}\right)^{3.36}}$$

Comparison of the equations indicates that the value of the coefficient is much more sensitive to changes in the properties of the fluids when turbulent flow exists, and that greater coefficients may be expected with this type of flow.

When these equations were used to predict the values of coefficients a maximum deviation of $\pm$ 16.4% was found to apply to about 10% of the data used while for the remaining 90% the deviation was less than $\pm$ 10%.

It is possible that similar considerations might govern the magnitude of the over-all coefficient in apparatus employed in other unit operations such as distillation, where like types of flow would occur.

While it is admittedly unwise to expect conclusions based on small-scale apparatus to apply exactly to larger equipment, yet some similarity of behavior may generally be expected in most cases. Assuming such similarity between large- and small-scale evaporators, as well as liquid velocities in the viscous range, some application might be made of the relationship presented above in Equations 1 and 2. Thus the determination of the over-all coefficient of heat transfer for one body of an evaporator set would enable the calculation of the constant appearing as the numerator of the fractions in the right-hand side of the equations, since evaluation of the physical properties of the fluid would be possible through reference to published data. The resulting equation should then apply to any other body in the set, the physical constants and temperature difference being evaluated for conditions existing in that body. Also, once the constant was known for the material undergoing evaporation, its value might be expected to apply to other materials in a similar body, provided that flow conditions remained comparable for the two solutions. Estimation of the value of the coefficient to be expected when handling the second material would then be possible if its physical constants were available.

It is planned to extend the investigation to alkaline black liquors and to sulphite waste liquor where similar considerations might be expected to apply.

Conclusions

The over-all coefficient of heat transfer in two small-scale natural circulation evaporators was found to be a logarithmic linear function of the over-all temperature difference and of the ratios $\left(\frac{\rho}{\mu}\right)$ and $\left(\frac{k}{c\mu}\right)$ to fractional powers.

The same exponential value for each ratio was obtained for two solutions in each of the two different machines provided the type of flow remained the same. The exponential values were materially larger in what was concluded to be turbulent flow.

The same exponential value of temperature difference was found in all cases studied.

Nomenclature

U = over-all coefficient of heat transfer, B.t.u./(hr.)(sq. ft.)(deg. F.)
μ' = viscosity, centipoises
μ = viscosity, lb./(ft.)(hr.)
c = specific heat
k = thermal conductivity, $\frac{\text{B.t.u.}}{(\text{hr.})(\text{sq. ft.})(\text{deg. F.})(\text{ft.})}$
ρ = density, lb./cu.ft.
Δt = over-all temperature difference, deg. F.
a, m, n, p = constant

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TABLE VI.—SINGLE EFFECT EVAPORATOR (CORRELATION OF COEFFICIENTS)

Run	Log ρ (cgs)	Log μ (cgs)	Log c 20 deg.	Log k (cgs)	Log $\frac{\rho}{\mu}$	Log $\frac{c\mu}{k}$	Log $\left(\frac{\rho}{\mu}\right)^{.4}\left(\frac{c\mu}{k}\right)^{0.8}$	Log $U\,\Delta t^{0.5}$
SUCROSE SOLUTIONS								
1	1.784	—.080	—.023	—.420	1.864	.317	0.999	3.595
2	1.793	.010	—.049	—.433	1.803	.394	1.036	3.571
3	1.802	.040	—.055	—.446	1.762	.431	1.050	3.531
4	1.809	.062	—.078	—.456	1.747	.440	1.051	3.495
5	1.820	.134	—.087	—.472	1.686	.519	1.090	3.479
6	1.827	.191	—.103	—.486	1.636	.574	1.113	3.446
7	1.835	.254	—.113	—.495	1.581	.636	1.141	3.429
8	1.842	.327	—.124	—.506	1.515	.709	1.173	3.409
9	1.851	.428	—.131	—.520	1.423	.817	1.223	3.389
CAUSTIC SOLUTIONS								
1	1.826	.054	—.046	—.417	1.772	.425	1.049	3.558
2	1.850	.172	—.057	—.422	1.678	.537	1.101	3.479
3	1.848	.184	—.056	—.422	1.664	.550	1.106	3.562
4	1.855	.224	—.059	—.426	1.631	.591	1.125	3.543
5	1.867	.274	—.063	—.427	1.593	.638	1.148	3.420
6	1.898	.369	—.073	—.436	1.529	.732	1.197	3.418
7	1.911	.434	—.079	—.442	1.477	.797	1.228	3.373
8	1.919	.517	—.080	—.443	1.402	.880	1.265	3.375

"NON-USERS ARE THE LOSERS"

50TH ANNIVERSARY

TENAX FELTS

50 YEARS OF SERVICE

Papermaking history was written in 1891 when we introduced TENAX FELTS. Throughout the succeeding fifty years constant research and experimental tests have kept them in the forefront as Leaders in producing perfect papers at low costs per ton.

Let TENAX FELTS point the way to greater 1941 profits in your Mill.

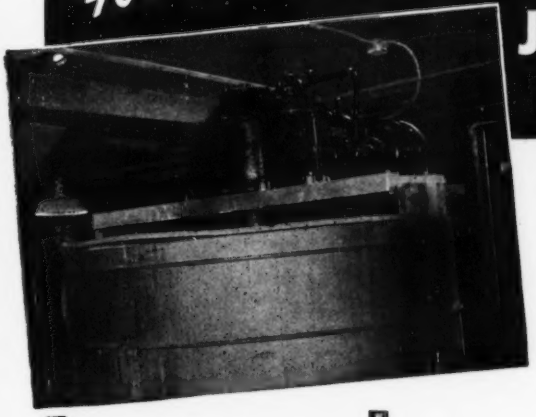
"Non-Users Are The Losers"

1891 – LOCKPORT FELT COMPANY – 1941

NEWFANE, N. Y. — U. S. A.

For driving agitators, mixers and similar equipment–

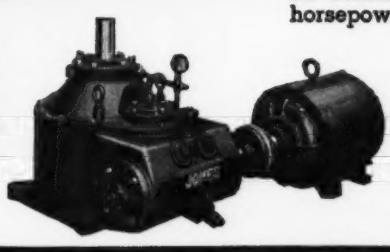
JONES WORM-HELICAL SPEED REDUCERS



HERE is a line of machines that fills a long felt need for double reduction units of the fully enclosed type to be used for agitators, mixers, etc. requiring a vertical shaft drive.

Many of these Jones units have established excellent performance records in a wide variety of service. As a result of that experience a complete standard line has been developed covering 15 standard ratios ranging from 40 to 1 to 250 to 1 for all common motor speeds and a wide range of horsepower ratings.

• This Jones Worm-Helical Speed Reducer on a lacquer agitator is typical of the wide range of services for which these drives can be used such as ore roasters, pulp tank mixers, furnaces, bending rolls and similar applications.



The new Jones Bulletin No. 75 covers complete details on these new Worm-Helical Speed Reducers, with rating tables, dimension diagrams, torque charts and other application information. We shall be pleased to send you a copy.

W. A. JONES FOUNDRY & MACHINE CO.

4443 Roosevelt Road, Chicago, Illinois

Jones

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING MAY 17, 1941

SUMMARY

Cigarette paper .....209 cs.
Newsprint .....6,190 rolls
Miscellaneous paper .....163 cs.

CIGARETTE PAPER

P. J. Schweitzer, ———, Fort de France, 142 cs.
Standard Products Corp., ———, Fort de France, 67 cs.

NEWSPRINT

H. G. Craig Co., Inc., ———, Donnacona, 351 rolls.
———, ———, Corner Brook, 1,791 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 358 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 379 rolls.
———, ———, Corner Brook, 2,933 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 378 rolls.

MISCELLANEOUS PAPER

A. E. Nydegger, ———, Kobe, 3 cs.
Irving Trust Co., ———, Kobe, 21 cs.
A. E. Nydegger, ———, Yokohama, 2 cs.
Irving Trust Co., ———, Yokohama, 15 cs.
P. J. Schweitzer, ———, Fort de France, 75 cs.
Champagne Paper Corp., ———, Fort de France, 25 cs.
American Tobacco Co., ———, Fort de France, 22 cs.

RAGS, BAGGINGS, ETC.

E. C. Andres, ———, Shanghai, 100 bls. cotton waste.
Empire Fibre Co., ———, Shanghai, 100 bls. cotton waste.
Padawer & Co., ———, Shanghai, 1,025 bls. cotton waste.
New England Waste Co., ———, Shanghai, 135 bls. cotton waste.
W. Intner Co., ———, Shanghai, 150 bls. cotton waste.
O. Gerdau, ———, Shanghai, 150 bls. cotton waste.
Hercules Powder Co., ———, Santos, 570 bls. cotton linters.
Williamson Products Co., ———, Santos, 182 bls. cotton linters, 62 bls. cotton picker waste.
Hercules Powder Co., ———, Buenos Aires, 596 bls. cotton linters.
West Texas Cottonoil Co., ———, Santos, 6,969 bls. cotton linters.
National City Bank, ———, Buenos Aires, 6 bls. rags.
Hercules Powder Co., ———, Santos, 5,132 bls. cotton linters.
New England Waste Co., ———, Santos, 153 bls. cotton linters.
Williamson Products Co., ———, Rio de Janiero, 23 bls. cotton picker waste, 58 bls. cotton waste.
Hercules Powder Co., ———, Santos, 3,394 bls. cotton linters.
New England Waste Co., ———, Santos, 139 bls. cotton linters.
Philadelphia National Bank, ———, Santos, 65 bls. cotton linters.
Hercules Powder Co., ———, Santos, 2,133 bls. cotton linters.
———, ———, Santos, 65 bls. cotton waste.

GLUESTOCK, ETC.

———, ———, Buenos Aires, 26 bls. gluestock.
———, ———, Santos, 200 bags boneglue, 2,240 bags glue bones.
E. Weil, Inc., ———, Rio de Janiero, 600 bdls. hide fleshings.

CASEIN

———, ———, Buenos Aires, 250 bags, 15,000 kilos.

LOS ANGELES IMPORTS

WEEK ENDING MAY 17, 1941

———, ———, Powell River, 2,991 rolls newsprint.
———, ———, Torreon, 300 bls. cotton linters.
———, ———, Nova Laredo, 200 bls. cotton linters.
———, ———, Manzanillo, 160 bls. cotton linters.
———, ———, Mazatlan, 287 bls. cotton linters.

B. C. Mills Confer on Wages

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., May 17, 1941—Representatives of the employees and the Powell River Company at Powell River, B. C., and the Pacific Mills, Ocean Falls, B. C., opened a conference at Vancouver, B. C., recently on a new agreement to replace one which expired on April 30.

Wages have been frozen in the pulp and paper industry by an Ottawa order-in-council that it is an "essential war industry," and employee representatives would not state what they would ask from the company in the new agreement.

Representatives of the employees are John Sherman, vice-president, and James Killen, Pacific Coast representative, of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers; Ernest B. Lambton, first vice-president, and A. W. Hannaford, Pacific Coast representative of the International Brotherhood of Paper Makers.

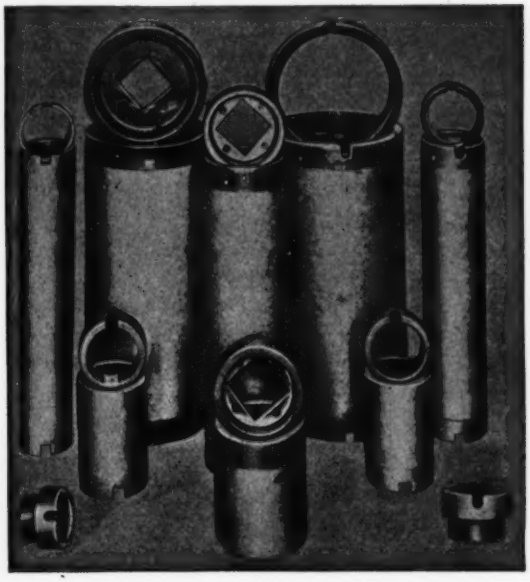
Swiss Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 14, 1941—Total Swiss paper production exceeded the peak figures for 1937. On the other hand, the output of newsprint alone was approximately 20 per cent lower than in 1939. The largest increase in production was recorded for wrapping paper, for which there is a continued heavy demand. Rationing of foodstuffs and packaging in smaller quantities requires more wrapping paper. Moreover, paper is being used increasingly for packaging in place of jute, cotton, and tin.

Up to now, the raw material supply has presented little difficulty. The principal problem in connection with production has been the coal shortage. Despite an increase in the cost of raw materials, prices of various kinds of paper have remained practically unchanged.

The Government has decreed measures looking to the regeneration of old paper which is being systematically collected for this purpose.



ELIXMAN

CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

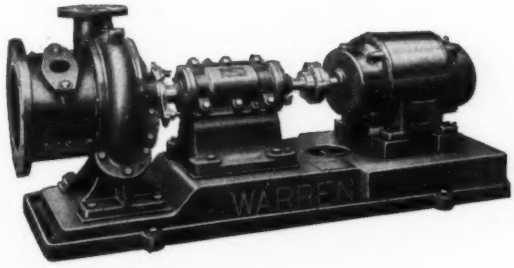
Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

CORES

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.

CORINTH, N. Y.



THE PUMP

that "licks" many a Stock Problem . . .

WARREN STOCK PUMP TYPE 4-SOD-12 WITH BALL BEARINGS

AND HERE'S WHY:

- Diagonally split casing and bearing pedestal permits easy removal of rotor.
- Separate suction liners protect case.
- Ball bearing pedestal, oil lubricated, and sealed against entrance of dirt or water.
- Self cleaning, non-binding impeller (several designs).
- Large suction nozzles with handhole (several sizes).
- Rigid, well braced cast iron base.

This pump is designed for those who want the best and who are interested primarily in a pump that will give long, reliable, trouble free service, and it should not be considered or confused with "just another" 4" pump for handling stock.

WARREN PUMPS

Warren Steam Pump Company, Inc., Warren, Mass.

New York Paper and Pulp Market Review

Paper Market Strong With Many Mills Reserving Privilege of Limiting Quantities To Customers—Pulp Market Active—Domestic Gunny Advanced This Week — Paper Stock Market Active.

Office of the PAPER TRADE JOURNAL,
Wednesday, May 21, 1941.

A strong paper market with sales of many kinds of paper and paper products firmly maintained at a high level, is reflected in reports received from many manufacturers' representatives, jobbers, and general paper merchants during the current week.

The index of general business activity rose to 126.1% for the week ended May 10, from 123.7% for the preceding week, compared with 103.0% for the corresponding week last year. Paper board production advanced 5.2%.

Paper production for the week ended May 10 was estimated at 100.9%, compared with 88.6% for 1940, with 79.4% for 1939, with 67.7% for 1938 and with 90.9% for the corresponding week for 1937.

Paper board production for the week ended May 10 was 84.0%, compared with 74.0% for 1940, with 65.0% for 1939, with 56.0% for 1938 and with 83.0% for the corresponding week for 1937.

Plans for price stabilization of kraft wrapping paper should be successful, as Leon Henderson, Price Administrator, reported last week that nine leading manufacturers had stated it was their policy not to increase prevailing market quotations on standard grades of kraft wrapping paper during the remainder of this year. The group of companies referred to, Mr. Henderson said, included more than half of the kraft paper production last year.

Newsprint consumption by all domestic publishers aggregated 331,735 tons in April, which was below the March level but some 5% above that of April, the increase being 3.7%. Advertising linage increased 6.5% in 52 city newspapers in April, 1941, compared with the like month last year.

Sales of paper in the wholesale market are reported in many quarters of the trade at the highest level on record. All the leading mills are reported to have large backlog orders, amount in some cases to 50% in excess of capacity. In view of the reported intention of the Administration to check what may be regarded as a too extensive production of civilian goods, and the setting up of priorities on materials more urgently needed for defense, some doubt as to the continuance of the current high production of paper and paper products has been expressed in the trade. At this date, the prospect appears to only include a moderate curtailment of most non-durable goods which compete with defense materials.

In reference to the price situation it may be said that the high and rapidly rising national income is indicative of a continuance of increasing buying of a wide variety of consumer goods and this heavy demand is exerting pressure on the prices of all commodities and goods. This is generally considered a normal situation in boom times and the operation of the law of supply and demand. No important changes from prevailing representative market quotations have been reported on any grades of paper at this date, although advances in some grades of book paper have been expected in some quarters of the trade for sometime and to be effective next July.

Chemical Pulp

The chemical pulp market is in a strong position, with the demand for most grades of pulp very active. An exception appears to be reflected in the easy situation of soda pulp at this date. Difficulty in getting cargo space for South American ports is becoming more acute, some exporters state. Prices continue unchanged.

Rags

Demand for many grades of rags is reported more active at this date. Exports of paper making rags for February were, according to the Department of Commerce, 284 tons, with a value of $50 or more per ton; and 1,248 tons, with a value of less than $50 per ton.

Old Rope and Bagging

Demand continues active for old Manila rope, with mills taking all limited available supplies at prevailing market prices. Prices on all grades of old rope are firm, with the market in a strong position. Current demand for jute strings is active.

Old bagging continues strong. Supplies are limited by decreased imports. Advances on domestic gunny are reported this week, the current quotations on No. 1 domestic gunny are at from 3.50 to 3.75.

Old Waste Paper

The paper stock market reflects a stronger tone at this date, as mill consumption continues at a high level. No important price change on any grade has been reported during the current week.

Twine

No important change in the twine market has been reported at this date. Sales volume is high, and the position of imported fibers is strong, due to the difficult and uncertain conditions in the import trade. Prices are firm and unchanged.

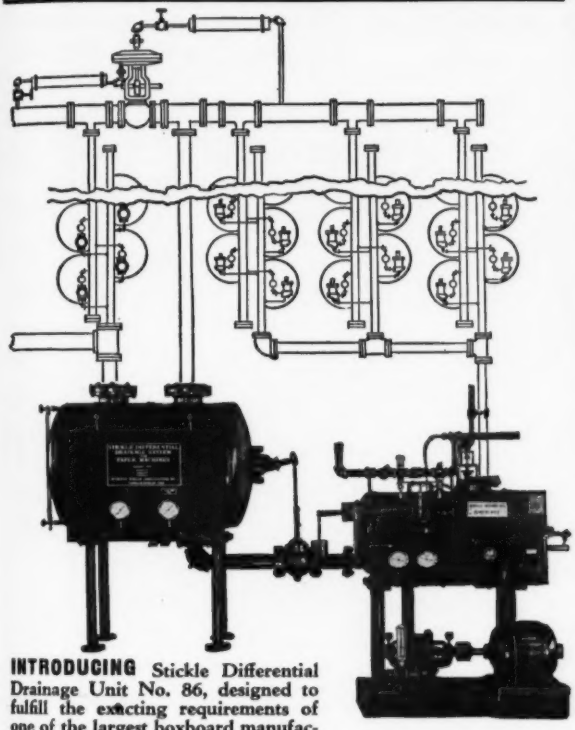
Sorg Announces Wage Increase

The Sorg Paper Company, Middletown, Ohio, announces that on April 17, 1941, the company put into effect retroactive to Monday, April 14, a new hourly wage rate for male employees. The announcement states that wages would be increased 6 cents per hour, and for all female employees, 4 cents per hour. At the same time, the company said, it notified employees of a further announcement which would shortly be made with respect to a vacation plan.

Visit American Writing Mills

BOSTON, Mass., May 19, 1941—A group of the younger salesmen of John Carter & Co., Inc., visited the mills of the American Writing Corporation, Holyoke, Mass., Thursday and Friday, to see the machinery in operation.

Reducing the Cost
of Paper Production with
Stickle Equipment



INTRODUCING Stickle Differential Drainage Unit No. 86, designed to fulfill the exacting requirements of one of the largest boxboard manufacturers. One of two special units built for this mill to dry more and better paper with less steam.

● Whether it is boxboard or bond, newsprint or fine book paper, full efficiency in drying depends upon effectively meeting the many and various problems occurring in the cycle beginning and ending in the boiler room.

Over a period of 36 years Stickle has been solving one after another of these problems—year by year designing . . . building . . . improving . . . equipment to increase operating efficiency and reduce costs.

Today a complete, co-ordinated system of Stickle Specialties affords a big saving in steam costs, eliminates wastes of steam in production, assures positive drainage of condensate and air, permits establishment and maintenance of desired moisture content, increases production volume and materially reduces quantity of sub-standard product.

Without obligation you can learn the Stickle Specialties needed in your plant to place your production on a basis to successfully meet today's demands for quality and price. Stickle equipment is furnished on 60 days' operating approval. Invite one of our field engineers to call or ask for bulletins giving further information.

STICKLE STEAM SPECIALTIES CO.
2245 Valley Avenue
INDIANAPOLIS, INDIANA

No More Steam Fit Troubles Here—

Bird & Son, Inc. uses 297 JOHNSON JOINTS

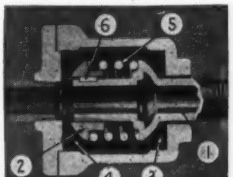
COMPARE your plant with this well-known, up-to-the-minute paper mill. Do you still have to oil and adjust steam fits? Do they have to be repacked regularly? Does misalignment of piping or rolls make frequent replacement of steam fits necessary? Do your syphon drainage pipes wear themselves out on dryer journals?

Then you should investigate the Johnson Rotary Pressure Joint, the modern steam fit that puts an end to all these troubles. It offers such important benefits and savings that it has set an entirely new pace in the paper-making industry. Over a hundred mills now use 50 or more Johnson Joints. Thirty-seven mills—like Bird & Son, Inc.—have purchased anywhere from 100 to as many as 760.

Don't let the moderate cost of changing over keep you from securing this efficient, trouble-free operation for your plant. Johnson Rotary Pressure Joints actually save enough, in reduced maintenance alone, to pay for themselves in just a short while.

HOW THE JOHNSON JOINT WORKS

Nipple (1) is fastened to roll of paper machine, calender or corrugator. Collar (2) is keyed (6) to nipple, but is free to slide back and forth. Carbon-graphite seal ring (3) and bearing ring (4) eliminate packing and are completely self-lubricating. Spring (5) is for initial seating only; in operation joint is pressure-sealed—adjusts itself automatically for most efficient operation.



WRITE FOR NEW BULLETIN

The Johnson Corporation
328 WOOD STREET, THREE RIVERS, MICHIGAN

USE THE JOHNSON ELECTRAP

● Today's highest development in a trap for pumping or lifting service and draining systems under high vacuum. Electric operation removes stuffing boxes, floats and all other moving parts from trap chamber. Control valve gear is one compact assembly—can be mounted in any convenient location if trap chamber must be set in inaccessible position. New bulletin gives all the details.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, May 21, 1941.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works. Demand reported moderate for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Shipments reported steady for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, with prices a little higher for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 15½ cents per pound; 80-100 mesh, at 16 cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 14 cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported good. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market firm. Shipments reported active for the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices higher on some grades. "G" gum rosin is currently quoted at $1.89 per 100 pounds, in barrels, Savannah "FF" wood rosin is currently quoted at $1.89 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.57 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm and nominal. Demand good. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16.50 per ton imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are quite firm and continue unchanged for the current week. Pearl is currently quoted at $3 per 100 pounds; powdered starch at $3.10 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported good for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$6.00
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.50	"	5.00
Standard Wrapping	4.50	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.75	@	10.75
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	45.00	@	—
Chip	45.00	"	—
Sgl. Mla. Ll. Chip	60.00	"	—
White Pat. Coated	75.00	"	—
Kraft Liners	55.00	"	—
Binders Boards	80.00	"	—

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1	$39.10 @ $46.00		$40.25 @ $47.25
100% Rag	31.05 " 36.50		32.20 " 37.75
85% Rag	.... "		29.90 " 35.00
75% Rag	23.60 " 27.75		24.75 " 29.00
65% Rag	.... "		21.65 " 26.25
50% Rag	17.55 " 21.50		18.70 " 22.75
25% Rag	14.65 " 17.75		15.80 " 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers
No. 1	$9.35 @ $11.50		$11.55 @ $12.75
No. 2	8.50 " 10.25		9.65 " 11.75
No. 3	8.05 " 9.25		9.20 " 11.25
No. 4	7.70 " 9.50		8.90 " 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	9.05	"	10.50
No. 2 Offset	8.40	"	9.75
A Grade E. F.	8.20	"	9.50
A Grade S. & S. C.	8.45	"	9.75
B Grade E. F.	7.65	"	8.75
B Grade S. & S. C.	7.90	"	9.00
C Grade E. F.	7.35	"	8.50
C Grade S. & S. C.	7.60	"	8.75
D Grade E. F.	7.10	"	8.25
D Grade S. & S. C.	7.35	"	8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	No prices		
Dry	No prices		
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
News Grade, delivered Unbleached Sulphite	61.00	"	64.25
(On Dock, Atlantic Ports)			
Kraft Bleached	4.12½	"	—
Kraft Light & Strong	3.75	"	4.15
Kraft No. 1	3.60	"	4.00
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.75	"	3.37½
(Delivered)			
Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.00	@	6.25
Silesias No. 1	4.25	"	4.50
New Unbleached	6.00	"	6.25
Blue Overall	4.25	"	4.50
Fancy	2.25	"	2.50
Washables	2.00	"	2.13
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.10	"	3.35
Miscellaneous	2.35	"	2.65
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.25	"	1.35
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.30	"	1.35
No. 2	1.20	"	1.25
No. 3 (bagging)	.95	"	1.00
No. 4	.90	"	.95
No. 5A	.90	"	.95

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

★ ★

THE *Engineer*
also quickens the
cadence of
construction

It is the plan that sets the pace for construction and production. It coordinates the flow of action and materials that buildings may rise in record time, that machines may be erected to begin their tasks at a hum that rises rapidly to the high rhythm of capacity output.

This organization of Engineers contributes forty years of experience to their plans for the millions of dollars of industrial and defense construction, the supervision of which has been entrusted to them.

This experience is available to you in this period when Time is being calipered for production.

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GREENVILLE · SOUTH CAROLINA

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Cut

Knife Cost—Grinding Cost—Power Cost
. . . . Heppenstall E. I. S. Alloy Steel
CHIPPER KNIVES

Wherever Heppenstall E. I. S. Alloy Steel Chipper Knives have been used they have lived up to the statement that knife grinding and power cost can be materially reduced—that they chip more cords than knives made of plain carbon steel.

These outstanding features of Heppenstall E.I.S. Alloy Steel Chipper Knives are built-in at the time the knives are made. Made of a balanced analysis of steel containing carbon, chrome, molybdenum and vanadium, these knives give 3 to 5 times more service between grindings, lose less width in grinding, require less power to operate and make less sawdust than chipper knives made of plain carbon steel.

Heppenstall E.I.S. Alloy Steel Knives will retain the same cutting edge after from 40 to 50 re-grinds. Frequent filings are unnecessary.

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PITTSBURGH · DETROIT · BRIDGEPORT

HEPPENSTALL QUALITY
Heppenstall has the Experience
Guaranteed
To show a unit cost below that of any other chipper knives on the market.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.50	@	3.75
Wool Tares, light....	2.50	"	2.75
Wool Tares, heavy..	2.50	"	2.75
Bright Bagging.....	3.15	"	3.30
Manila Rope—			
Foreign	5.50	"	5.75
Domestic	5.50	"	5.75
Jute Threads.....	2.75	"	3.00
Sisal Strings	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.60	"	2.75
Soft White No. 1..	2.25	"	2.35
Soft White Extra..	2.70	"	2.85
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book...	.90	"	.95
Crumbled No. 1 ..	.70	"	.75
Ledger White Stock.	1.65	"	1.75
Ledger Stock Colored	1.20	"	1.30
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.80	"	1.90
Old Kraft Machine Compressed bales..	1.35	"	1.50
News—			
No. 1 White News	1.50	"	1.60
Strictly Overissue..	.96	"	1.00
Strictly Folded....	.60	"	.65
Corrugated	.60	"	.62½
No. 1 Mixed Paper..	.42½	"	.47½

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.19½	@	—
White Hemp	.19½	"	—
Fine Polished—			
Fine India.....	.22¼	"	—
Unpolished—			
Box	.15¾	"	—
Paper Makers.....	.15½	"	—
Tube Rope.....	.16¾	"	—
Wall Paper.....	.19½	"	—
Wrapping	.19½	"	—
Soft Fiber Rope...	.17½	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.12	"	—
Mex. Sisal.....	.11	"	—
Manila	.25	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06½	@	.06¾
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached..	.06¼	"	.06½
Washable Prints..	.02½	"	.03
Washable No. 1..	—	"	.01½
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01½
Fancy Percales....	.03	"	.03¼
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.02	"	.02¼
Corduroy	.01¼	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	Nominal		
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1...	1.30	"	1.35
Domestic No. 2...	1.10	"	1.15
Roofing Bagging..	1.00	"	1.05

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	3.25	@	3.75
Domestic	3.00	"	3.25
Manila Rope.....	—	"	5.50
Sisal Rope.....	2.00	"	2.25
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	3.00	"	3.25
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.75	"	4.00
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.25	"	3.50

Old Papers

(F. o. b. Phila.)

Shavings—			
Hard White Special	2.50	@	2.70
Hard White.....	2.35	"	2.40
No. 1 Soft White..	1.90	"	2.00
No. 2 White.....	1.70	"	1.85
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.50	"	1.60
Ledger Stock, colored	1.25	"	1.30
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.60	"	.65
Container Manila....	.50	"	.55
Kraft Paper	1.40	"	1.45
No. 1 Mixed Paper..	.45	"	.50
Straw Board Chip...	.45	"	.50
Binders Board Chip..	.35	"	.40
Corrugated Board...	.60	"	.65
Overissue News.....	.85	"	.90
Old Newspapers.....	.60	"	.65

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.15	@	3.25
No. 1 Soft White	2.50	"	2.75
No. 2 Mixed.....	.90	"	1.00
Solid Ledger Books..	2.00	"	2.10
Overissue Ledger Stock	1.75	"	2.00
White Ledger Stocks	1.50	"	1.65
Mixed Ledgers	1.25	"	—
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	1.15	"	1.20
Manila Env. Cuttings	2.55	"	2.65
Manila Envelope Cuttings, extra quality	2.65	"	2.75
White Blank News..	1.70	"	1.80
No. 1 Kraft.....	1.35	"	1.45
Extra No. 1 Kraft..	1.75	"	—
Mixed Papers.....	—	"	.40
Print Manila	.60	"	.65
Container Manila....	.60	"	.70
Old Newspapers.....	.47½	"	.52½
Paper Wool Strings.	.95	"	1.15
Overissue News.....	.65	"	.70
Box Board Chips...	.35	"	—
Corrugated boxes....	.55	"	.65
Kraft corrugated boxes	1.15	"	1.25
New Kraft Corrugated Cuttings	1.75	"	2.00
Screening Wrappers.	.85	"	.90

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	4.00
Sisal Rope.....	2.60	"	2.75
Mixed Rope	.85	"	1.00
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Soft Jute Rope.....	4.25	"	4.75
Manila Rope—			
Foreign .....(nominal)			
Domestic	5.75	"	6.00
Jute Carpet Threads.	3.00	"	3.25
Bleachery Burlap....	5.00	"	5.50
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.25	"	3.75
Scrap Sisal.....	2.75	"	3.00
Scrap Sisal for Shredding	2.50	"	2.60
Wool Tares—			
Foreign	(nominal)		
Domestic	2.85	"	3.00
Aust. Wool Pouches.	3.25	"	3.50
New Burlap Cuttings	4.00	"	4.25
Heavy baling bagging	3.25	"	3.50
Paper Mill Bagging..	2.75	"	3.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.03¾	"	4.00
New White No. 1.	.06	"	.06¼
New Light Flannelettes	.03¾	"	4.00
Canton Flannel, Bleached	.06	"	—
Underwear Cutters, Bleached	.05	"	.05¼
Silesias No. 1.....	.04	"	.04¼
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached....	.06	"	.06¼
Blue Cheviots.....	.04¼	"	.04½
Fancy	.01½	"	.01¾
Washable	.01½	"	.01¾
Cottons—According to Grades—			
Blue Overalls.....	.04	"	.04¼
New Black, Soft..	.03	@	.03¼
Khaki Cuttings.....	.02	"	.02¼
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.02	"	—
New Canvas.....	.05½	"	—
B. V. D. Cuttings...	.06	"	.06¼

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	2.75	@	3.00
Miscellaneous	2.00	"	2.25
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	2.00	"	2.25
Old Blue Overalls...	1.60	"	2.00
Thirds and Blues....	1.25	"	—
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.25
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas .....(nominal)	
Dark Cottons.....(nominal)	
Dutch Blues.....(nominal)	
New Checks and Blues(nominal)	
Old Fustians.....(nominal)	
Old Linsey Garments.(nominal)	
New Silesias.....(nominal)	

CHICAGO

Waste Paper

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings ...	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.83	"	—
Blanks	1.45	"	—
Krafts	1.40	@	1.50
New Kraft Cuts....	1.60	"	1.75
Overissue News.....	.60	"	—
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.45	"	—
Roofing Stocks—			
No. 1.....	.95	"	1.00
No. 2.....	.85	"	.90

Crane To Furnish Distinctive Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 21, 1941—Only one bid was received last week for furnishing distinctive paper for printing the currency and public debt securities of the United States during the fiscal year 1942. It was from Crane & Co., Inc., Dalton, Mass., the present contractor. The price was 40.5 cents a pound, an increase of 1.75 cents over the present contract price of 38.75 cents.

Rebuild West Dudley Plant

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 19, 1941—Reconstruction of the plant of the West Dudley Paper Division of the Rhode Island Card Board Company at West Dudley, Mass., is progressing apace, so that it is expected to be in operation within a few months. The original plant was seriously damaged by fire some months ago.

J. A. McIntyre To Be Manager

ROCKINGHAM, N. C., May 17, 1941—J. A. McIntyre, Jr., is the new manager of the Sonoco Products Company plant here. He has been with the Hartsville Sonoco plant for six years. The mill here is running three shifts, and has a large government contract for paper napkins.

Gummed Tape Co. Moves

The Gummed Tape and Devices Company, has announced to the trade that it has removed its place of business to 1318-1320 Sixtieth street, Brooklyn, N. Y. The new telephone number is Windsor 8-4636.